

**ENVIRONMENTAL PROTECTION IN AN ERA  
OF DRAMATIC ECONOMIC GROWTH  
IN LATIN AMERICA**

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**HEARING**  
BEFORE THE  
SUBCOMMITTEE ON WESTERN HEMISPHERE,  
PEACE CORPS, NARCOTICS AND TERRORISM  
OF THE  
COMMITTEE ON FOREIGN RELATIONS  
UNITED STATES SENATE  
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## CONTENTS

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	Page
DeWalt, Dr. Billie R., director, Center for Latin American Studies; distinguished service professor of Public and International Affairs and Latin American Studies, University of Pittsburgh, Pittsburgh, PA .....	28
Prepared statement .....	31
Eichenberger, Joseph E., Director, Office of Multilateral Development Banks, U.S. Department of the Treasury, Washington, DC .....	11
Prepared statement .....	14
Mr. Eichenberger's response to additional questions submitted for the record .....	39
Leonard, Carl H., Acting Assistant Administrator, Bureau for Latin America and the Caribbean, U.S. Agency for International Development, Washington, DC .....	2
Prepared statement .....	6
Mr. Leonard's response to additional questions submitted for the record ...	37
Watson, Hon. Alexander F., vice president and executive director for International Conservation, The Nature Conservancy, International Headquarters, Arlington, VA .....	22
Prepared statement .....	24
The Nature Conservancy's response to additional questions submitted for the record .....	41



## ENVIRONMENTAL PROTECTION IN AN ERA OF DRAMATIC ECONOMIC GROWTH IN LATIN AMERICA

TUESDAY, JULY 25, 2000

U.S. SENATE,  
SUBCOMMITTEE ON WESTERN HEMISPHERE,  
PEACE CORPS, NARCOTICS AND TERRORISM,  
COMMITTEE ON FOREIGN RELATIONS,  
*Washington, DC.*

The subcommittee met, pursuant to notice, at 9:35 a.m. in room SD-419, Dirksen Senate Office Building, Hon. Lincoln D. Chafee (chairman of the subcommittee) presiding.

Present: Senator Chafee.

Senator CHAFEE. The hearing will come to order. This hearing of the Subcommittee on Western Hemisphere, Peace Corps, Narcotics and Terrorism will focus on environmental protection in an era of dramatic economic growth in Latin America." I would like to welcome the witnesses, and thank them all very much for appearing before us today.

As the title of the hearing says, we are witnessing changes in South America and the Caribbean, particularly in the growth of the middle class and in the slow emergence of democracy and progress in many areas. I think it is appropriate to address whether we are seeing the same sort of progress environmental as well.

As protection, Mr. Leonard says in his testimony, the countries in Latin America and the Caribbean have made some progress in advancing the well-being of their citizens in the past decade. This is great news. People are better educated and healthier than ever before. Economic reforms have spurred more growth, and democracy has been embraced in most countries. We have recently seen good things happening in the Caribbean and South America, and I think it behooves us to address how the United States of America can help these nations in environmental progress as well.

I am also the chairman of the Environment and Public Works Subcommittee on the Superfund, and as I travel around and look at the various Superfund sites in my home State of Rhode Island—there are 14 in all, and I just went to my twelfth visit yesterday—I am staggered by the cost of the cleanup of these sites. I would note that much of the damage was done legally, at a time when people did not know what to do with some of these toxic wastes. Whether it is a landfill or a tire dump, it was legal at the time.

Just think to yourself, helping to stop other countries from making these enormously expensive mistakes is surely in everybody's

best interest, including the environment and the pocketbook. I mentioned what is happening in Rhode Island, but there are other examples such as the Hudson River and the Coeur d'Alene Valley in Idaho. Given the massive price tag into the billions of dollars—of the cleanup from the mine wastes that have flowed through the Coeur d'Alene Valley into the lakes and streambeds. I think that this is something Congress should look into further.

The developing countries in the Caribbean and South America are certainly a great test tube of developing countries. All over the world, of course, countries are developing, Africa and Asia for example. But here in our own Western Hemisphere, we can monitor and help, achieve progress in countries, so close to home.

Last, let me say that a few weeks ago the Senate voted on a massive aid package to Colombia, most of which went to military hardware. This should justify a pause as we look at trying to help these countries. Is it always through arms? Is there a better way in helping these countries, making friends, promoting democracy and achieving progress? I would hope so, and so we welcome the first panel, and Mr. Carl Leonard, who is a long-time student of Latin America. I believe he first became involved in 1971. I look forward to your testimony. Welcome.

**STATEMENT OF CARL H. LEONARD, ACTING ASSISTANT ADMINISTRATOR, BUREAU FOR LATIN AMERICA AND THE CARIBBEAN, U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT, WASHINGTON, DC**

Mr. LEONARD. Thank you very much, Mr. Chairman, for inviting me to speak on environmental problems in Latin America and the Caribbean [LAC], or LAC region.

I would like to emphasize three points. First, environmental degradation in the LAC region is severe, and has serious consequences for both the people of the region and the United States. Second, USAID environmental programs are having a positive and significant impact, but the dimensions of the problem are well beyond the resources of the individual donor, and third, poverty and environmental degradation are interrelated and interdependent. Poverty is one of the major forces driving environmental degradation, while sound natural resource management is essential for reducing poverty and ensuring future prosperity.

I request that my full written statement will be included in the record.

Senator CHAFEE. Without objection.

Mr. LEONARD. In the past decade, the countries of the region have significantly advanced the well-being of their citizens. People are better educated and healthier, economic reforms have spurred more robust growth, and democracy is embraced in most countries. We are encouraged by this progress, but major challenges remain. Severe degradation of the region's environment and natural resource base is one of the most serious challenges. Most alarming, the degradation is accelerating. The environmental services and resources upon which economic prosperity, health, security, and stability depend are being destroyed.

This environmental destruction cannot be viewed in isolation. From my current perspective and from my experience as USAID

Mission Director in Costa Rica, Bolivia, and El Salvador, I firmly believe that to safeguard progress and advance prosperity sound environmental management must be a high priority within the region's broader development agenda.

The LAC region is blessed with an extraordinarily rich natural resource base. However, this fortune can mask the severity of the environmental crisis. For example, LAC has half of the world's tropical forest, but also one of the world's highest rates of deforestation. The region lost more than 210 million acres of forest between 1980 and 1995. Brazil, the country with the greatest amount of tropical forest in the world, loses more than 1 percent annually, or an area four times that of Rhode Island.

Of particular concern, countries with the least amount of remaining forest have some of the highest deforestation rates. At these rates, some countries will lose their remaining forest within the next 10 to 20 years.

Similarly, the region is blessed with more fresh water per capita than any other region of the world, but during the past 50 years it has suffered the greatest decline per capita. The principal culprits are poor watershed management, misuse of agricultural inputs, the overdrawing of aquifers, and the lack of wastewater treatment.

The region's marine and coastal resources include the second longest reef in the world, and extensive mangroves and estuaries. These resources harbor globally important biological diversity, support fisheries and tourism, buffer coastal communities against storm damage, and are at the core of some countries' economies.

However, siltation, pesticides, and wastewater are smothering the region's reefs. Scientists categorize the survival of two-thirds of the reefs as threatened or highly threatened. Rapid urbanization, fueled in large part by immigration from rural areas, is magnifying cities' already severe environmental problems.

Conditions are particularly severe in shanty towns, where almost half of city residents live, where the greatest growth is taking place, and where raw sewage and solid waste are dumped directly into the environment. More than 90 percent of LAC's urban and industrial wastewater is released to the environment untreated.

None of the numerous examples illustrates the impact of resource mismanagement more clearly than Hurricane Mitch. To describe Mitch as a natural disaster is a misnomer. Nature provides the physical phenomena. People produce the vulnerability through the resource use decisions we make. It is the combination of the two that leads to disasters.

Mitch left more than 9,000 dead, 3 million people homeless, and left \$8 billion in direct damages. Experts attribute 70 percent of the damage to poor land use decisions. The message is clear. Ignoring sound environmental practices imperils development.

Environmental degradation in the LAC region directly affects the United States. Some impacts are immediately noticeable, for example, the 1998 fires in Mexico and Central America that fouled the air of the southern United States. The impacts of habitat degradation are less immediate, but profound, including sharp reductions in populations of migratory birds, an important green species.

Environmental degradation can also lead to human flight. The 1999 report of the International Red Cross concluded that the number of people displaced by environmental degradation outstrips the number displaced by political unrest and war. Environmental degradation contributes significantly to immigration pressures.

The most severely affected by environmental degradation are the poor, who live in the most vulnerable environments, often squatting on marginalized areas, which maximizes their exposure to disasters. The poor also lack access to clean water and sanitation, and often are forced to meet their needs through environmentally destructive practices such as the clearcutting of steep slopes for firewood, and slash-and-burn agriculture. Consequently, the poor are the greatest victims of environmental degradation, but poverty is one of the most significant forces driving that degradation.

Rapid population growth makes the challenge more difficult. Although growth rates have dropped, population levels have not yet stabilized. Meeting the needs of a growing population places greater demands on the environment.

Recognizing that improved resource management is essential to reduce poverty and foster prosperity, USAID follows four principles in designing our environmental programs. First, we develop and disseminate environmentally sound practices that ensure economic returns competitive with or superior to current wasteful practices.

Second, we engage and empower local communities and individuals, for community action makes government more responsive and individual ownership and tenure provide motivation for stewardship.

Third, we increase public awareness about the consequences of and alternatives to degradation, and fourth, we promote policy reforms that direct market forces toward sustainable use.

Our environment program in the region totals approximately \$65 million each year. I would like to summarize a few examples. USAID supports sustainable tropical forest management through policy reform, capacity building, introduction of sustainable forestry practices, and business market development. In Bolivia, the USAID program successfully strengthened the technical capacity of community groups and fostered partnerships with industry. The area of tropical forest certified as well-managed has increased fifteenfold, from 128,000 acres to 2 million acres. Exports of eco-certified timber have increased from zero to nearly \$8 million annually. We are supporting similar programs in Brazil, Peru, Ecuador, Honduras, and Guatemala.

In Honduras, USAID's land use and productivity enhancement project, known as LUPE, improved hillside agricultural practices. Approximately 38,000 hillside farm families adopted environmentally sustainable cultivation practices. As a result, soil erosion losses on steep slopes were reduced from 37 tons per acre to less than half a ton, saving an estimated 5 million tons of topsoil annually. Farmers increased their income by more than 50 percent.

LUPE's effectiveness was vividly demonstrated during Hurricane Mitch. Although soil erosion and landslides destroyed many farms, adjacent LUPE sites withstood the ravages of the storm. The LUPE approach has been adopted and spread by Central American gov-



ernments and donors in their commitment to “build back better” after Mitch.

USAID is the leader in assisting LAC countries to conserve and utilize their biological resources in a sustainable manner. Our programs have improved protected areas management, safeguarded key watersheds, strengthened local NGO’s and community groups, assisted indigenous communities to secure land tenure, and provided environmentally sound economic alternatives.

For example, the Parks in Peril program, our partnership with the Nature Conservancy, local NGO’s and municipalities, builds local capacity to conserve biological diversity. The program has improved protection at 37 park sites covering over 28 million acres.

Industrial pollution impairs human health and degrades economically important ecosystems. We have demonstrated that reducing pollution while enhancing business performance is a win-win approach. Our pilot projects have introduced pollution prevention technologies that reduce the consumption of water, energy, and raw materials, and thus improve efficiency and reduce costs.

Because the challenge is beyond the means of any one actor, partnerships are essential. Accordingly, we build local capacity and commitment so programs will continue and have the opportunity to expand and engage the resources and creativity of the host country.

Second, we develop models that others adopt. Practical, simple, and culturally appropriate models have the best opportunity for being disseminated.

Third, we form partnerships with NGO’s, universities, and other Federal agencies. These institutions are the source of extensive technical expertise and commitment, which we complement with our international development experience and country knowledge.

Fourth, we encourage the “greening” of private investment, for private investment in the region far exceeds levels of donor assistance.

And fifth, we coordinate closely with the multilateral development banks and other donors. USAID provides grant resources that host countries and international financial institutions frequently lack. We are doing the analyses and pilot activities needed for the design of larger loan programs. Coordination among donors can also encourage developing countries to adopt the reforms necessary for sound development.

In conclusion, environmental degradation threatens sustained social and economic progress in our hemisphere. Environment remains the key element in our overall development strategy. We will continue to implement and build upon the successful approaches outlined above to improve environmental management, conserve biodiversity, alleviate poverty, and ensure future prosperity.

Finally, we greatly appreciate the interest of this subcommittee in an environment and development issues, and look forward to working with you. Thank you for the opportunity to present our views.

[The prepared statement of Mr. Leonard follows:]

## PREPARED STATEMENT OF CARL LEONARD

## I. OPENING

Thank you, Mr. Chairman, for inviting me to speak on environmental problems in the Latin America and Caribbean (LAC) region. Many of these problems are due to rapid economic and population growth, and unsustainable land-use practices, as well as other stresses on the environment. In addressing these issues, I would like to emphasize three points:

1. First, environmental degradation in the LAC region is severe and has serious consequences for both the people of the region and the United States.
2. Second, environmental degradation cannot be addressed in isolation of other development challenges. In particular the resolutions to poverty and environmental degradation are interrelated and interdependent—poverty is one of the major forces driving environmental degradation, while sound natural resource management is essential for reducing poverty and ensuring prosperity within the region.
3. USAID programs to conserve natural resources and foster their sustainable use are achieving positive results, but the dimensions of the problem are well beyond the resources of any individual donor.

## II. INTRODUCTION

The countries of LAC have made significant progress in advancing the well-being of their citizens in the past decade. People are better educated and healthier than ever before, economic reforms have spurred more robust growth, and democracy has been embraced in most countries. We should be and are encouraged by this progress. Nevertheless, the progress is fragile and major challenges remain.

Severe degradation of the region's environment and natural resource base is one of the most serious challenges. Most alarming, the degradation is accelerating. The environmental services and resources upon which economic prosperity, health, security, and political stability rest are being destroyed. But, this environmental destruction cannot be viewed in isolation. Rather, it must be addressed in the broader context of development challenges including issues of governance, equity, and human and institutional capacities. From my current perspective and from my experience as USAID Mission Director in Costa Rica, Bolivia, and El Salvador, I firmly believe that to safeguard progress and advance prosperity, sound environmental management must be a high priority within the region's broader development agenda.

It is the good fortune of the region to be blessed with an extraordinarily rich natural resource base. But, this fortune can mask the severity of the environmental crisis. I will first outline some of the most significant problems to illustrate the extent of this crisis. Then I will cite approaches USAID has found successful in helping to address the region's environmental challenges.

## III. EXAMPLES OF ENVIRONMENTAL DEGRADATION

*Forests*—LAC has half of the world's tropical forests, but also one of the world's highest rates of deforestation. The region lost more than 210 million acres of forest between 1980 and 1995. Brazil, the country with the greatest amount of tropical forest in the world, loses more than one percent annually, or an area four times that of Rhode Island. Of particular concern, countries with the least amount of remaining forests have the highest deforestation rates. For example, if Jamaica, with only ten percent of its forest remaining, does not reduce its deforestation rate, it will have no forests by 2010.

What is lost when forests are destroyed?—watershed protections, soil stabilization, habitat for biodiversity, and employment opportunities from forest industries and other businesses dependent on forest services. Left behind frequently are fragile and easily degraded lands. Conversion to agriculture is the principal cause of deforestation, but paradoxically much of the cleared land is unsuitable for sustained agricultural production. The chain of events is all too common. Declining land fertility leads to declining yields, which causes farmers to switch land to less productive uses such as pasture, use more inputs such as chemical fertilizers, and eventually abandon unproductive lands to move on to clear remaining forests.

*Fresh Water*—Besides forests, the LAC region is blessed with more freshwater per capita than any other region of the world, but during the past fifty years it is also the region that has suffered the greatest decrease per capita. The principal culprits are poor watershed management, misuse of agricultural inputs such as fertilizers and pesticides, the overdrawing of aquifers, and the lack of wastewater treatment.

More than ninety percent of LAC's urban and industrial wastewater is released to the environment untreated. The consequences of water mismanagement include: severe health problems (e.g., waterborne diseases cause sixty percent of child mortality); reduced hydroelectric potential; water shortages and increased costs for industry, agriculture, and homes; reduced shipping capacity; and extensive damage to freshwater, coastal, and marine ecosystems.

*Marine Resources*—The region's extensive marine and coastal resources include the second longest reef in the world, and extensive mangroves, sea grass beds, and estuaries. These resources harbor globally important biological diversity, support fisheries and tourism, buffer coastal communities against storm damage, and are at the core of some countries' economies. The small island nations of the Caribbean derive thirty-one percent of their GDP from a tourism industry based on the beauty of their marine environments. Nevertheless, the region's reefs are being smothered and poisoned by siltation, pesticides, and wastewater. Scientists categorize the survival of two-thirds of the reefs as threatened or highly threatened. Other marine and coastal resources, such as mangrove forests are faring no better.

*Production of Illegal Drugs*—Production of illegal drugs create significant environmental issues. The impact on the environment of coca production and cocaine manufacturing in Bolivia has been well-documented. Land clearing for coca alone caused a deforestation rate estimated at 10,000 hectares/year. Cocaine processing also has an environmental impacts. Lime and sulfuric acid, used in the manufacture of cocaine base and discarded afterwards, modifies the pH of soil and water. Kerosene, used as a leaching agent, diminishes the oxygenation capacity of rivers, killing wildlife. During peak production times in Bolivia, annual averages of 14 million liters of kerosene were dumped into rivers.

*Urban Environment*—Rapid urbanization, fueled in large part by immigration from rural areas, is magnifying cities' already severe environmental problems. Urban environmental services are essentially absent. The sewage of most households goes untreated, and refuse pick up is sporadic, inadequate, or totally lacking. Conditions are particularly bad in the shantytowns where almost half of city residents live and where the greatest growth is taking place. The rapid expansion of the "informal" (unregulated) sector of the economy, which employs over sixty percent of the labor force, is adding to the solid waste and wastewater problems. Unregulated textile, leather, metal processing shops and other small manufacturing operations dispose of their chemical and solid wastes in the most expeditious manner possible.

*Disasters*—None of the numerous examples illustrates the impact of resource mismanagement more clearly than Hurricane Mitch. To describe Mitch as a "natural disaster" is a misnomer. Nature provides the physical phenomena, people produce the vulnerability through the resource-use decisions we make. It is the combination of the two that leads to disasters.

Hurricane Mitch was the most destructive disaster in the Hemisphere's recorded history. Central America reported more than nine thousand deaths, and three million left homeless. Total direct damage reached \$8 billion, including the destruction of social and economic infrastructure such as transportation routes, villages, schools, and crops. Such events threaten sustainable development, by destroying years of development progress and investments and shifting development priorities from long-term goals to meeting relief and reconstruction needs.

The Central American Commission on Environment and Development (CCAD) estimated that seventy percent of the damage from Hurricane Mitch can be attributed to poor land use decisions. The message is clear—ignoring sound environmental practices imperils development.

*Impacts on the United States*—Environmental degradation in the LAC region directly affects the United States. Some impacts are immediately noticeable, for example, the 1998 fires in Mexico and Central America that fouled the air of the southern United States and reached as far as New Jersey. The impacts of habitat degradation are less immediate but profound. As examples, nearly two-thirds of the bird species found in the United States are migratory and depend upon LAC habitats during winter months, and many U.S. commercial marine species depend upon coastal nurseries throughout the region. Loss of habitat in the LAC region has been a significant cause for the sharp reduction we have experienced in migratory birds and the population of important marine species in our country.

Environmental degradation can also lead to human flight. The 1999 annual report of the International Committee of the Red Cross concluded that the number of people displaced by environmental degradation far outstrips the number displaced by complex disasters such as political unrest, oppression, and war. When unsustainable practices exhaust fisheries and land, when pollution diminishes the quality of life, and when houses, schools, and clinics disappear in a disaster, people are compelled

to move. There is no doubt that environmental degradation contributes significantly to the immigration pressures we experience.

Businesses in the U.S. also have long-term interests in the sound maintenance of our neighbors' resource bases. U.S. timber, fishing, tourism, and agricultural companies have made significant investments that require sustainable resource management.

Finally, degradation in the LAC region affects the U.S.'s interest in the global issues of biodiversity conservation and climate change. Latin American and Caribbean countries have approximately half of the world's biological diversity. The rapid measurable rate of habitat destruction demands our attention. The region's emission of greenhouse gases is substantial and rapidly increasing. A significant portion of this is due to deforestation, but the expansion of industrial output and growing demand for energy are major and growing contributors. If environmental practices for land-use, and energy production and use are not improved, the region's emission of greenhouse gases will dramatically increase.

*Poverty and Population*—The most grievously affected by environmental degradation are the people of the region, particularly the poor who have no choice but to live in the most vulnerable and degraded environments. It is the poor who depend most directly on natural resources to meet their basic human needs, and have limited access to safe and productive lands. It is the poor who are forced to squat on marginalized areas, such as floodplains, which maximizes their exposure to the next disaster. When disaster strikes, it is the poor who lack a safety net. The poor also lack access to clean water and sanitation facilities, and often are forced to meet their needs through environmentally destructive practices such as clear cutting steep slopes for firewood and slash-and-burn hillside agriculture. Consequently, the poor are the greatest victims of environmental degradation, but paradoxically it is poverty that is one of the most significant forces driving degradation.

Although alleviating poverty is the principal development and environmental challenge, rapid population growth makes the challenge more difficult. We are encouraged that in recent years there has been a marked decrease in growth rates, but population growth in the region has not yet stabilized. Due to the large percentage of young people in LAC countries (thirty-three percent are less than fifteen years of age), the population will double in Latin America and the Caribbean in the next thirty-nine years. In countries with the fastest growing populations—Guatemala, Nicaragua, and Honduras—populations will double in twenty-five years or less. As a point of comparison, it will take one hundred-twenty years for the population in the United States to double.

Meeting the needs of a growing population and increasing standards of living to reduce poverty will place greater demands on the resources and services the environment provides. Sustainable resource management is, therefore, not simply essential to protecting the environment but to reducing poverty and assuring future prosperity and security in the region.

#### IV. USAID PROGRAMS

Recognizing the relationship between poverty and natural resource management, USAID follows four basic principles in the design and implementation of our environment programs in LAC:

1. USAID develops and disseminates environmentally sound practices that ensure economic returns competitive with or superior to current wasteful practices, for it is essential that people have sound resource-use alternatives available to meet their needs;
2. USAID engages and empowers local communities and individuals, for community action and decentralization make government responsive to the needs of the people; and individual ownership and tenure provide motivation for stewardship;
3. USAID increases public awareness about the consequences of and alternatives to degradation, for sound environmental management requires a broad constituency; and
4. USAID promotes policy reforms that direct market forces toward sustainable use, for without the proper incentives the development and dissemination of best practices will be of limited utility.

Our environment program in LAC totals approximately \$65 million each year. I would like to provide you with a few examples employing the above principles.

*Sustainable Forestry*—USAID supports sustainable tropical forest management through policy reform, capacity building, introduction of improved technical practices, and business/market development. In Bolivia, USAID helped develop a com-

prehensive forestry law that: (a) ensures greater accountability and transparency in awarding concessions, (b) establishes high technical standards for management, (c) establishes appropriate market pricing that provides incentives for sustainable management, and (d) provides a framework for local communities and indigenous groups to obtain legal rights to forest resources. The program successfully refines and demonstrates best management practices, strengthens the technical and management capacity of community and indigenous groups, and fosters partnerships with industry to access international markets for sustainably produced forest products.

Through the program, the area of tropical forests certified as well managed by such groups as the Forest Stewardship Council has increased fifteen-fold from 128,000 acres to two million acres—the most in the LAC region—and exports of eco-certified timber have increased from zero to nearly \$8 million annually. By 2004 we expect that six million acres of forests will be certified and exports of certified products will surpass \$20 million annually. USAID is implementing similar programs in Brazil, Peru, Ecuador, Honduras, and Guatemala.

*Hillside Agriculture*—In Honduras, USAID's Land Use and Productivity Enhancement project (LUPE) promoted improved hillside agriculture practices that increase agricultural production with improved management of natural resources. LUPE also assisted farmers with crop diversification and marketing, especially of high value vegetables. Environmental education was carried out in rural elementary schools to enhance environmental awareness, and municipalities were strengthened in small watershed management. As a result of the program, approximately thirty-eight thousand hillside farm families in southern and central Honduras adopted environmentally sustainable cultivation practices. Soil conservation practices reduced soil erosion losses on steep slopes from thirty-seven tons per acre to less than half a ton per acre, saving an estimated five million tons of topsoil annually from LUPE sites; and in the process farmers increased their income by more than fifty percent.

The effectiveness of LUPE's conservation practices was vividly demonstrated during Hurricane Mitch. Although many farms were destroyed by soil erosion and landslides, adjacent LUPE sites withstood the ravages of the storm. Central American governments and international donors, in their commitment to "build back better" after Mitch, are replicating LUPE models that protect the environment, address poverty, and reduce downstream vulnerability of people and economic investments to natural disasters. USAID has similar successful hillside agriculture programs in several other Caribbean and Central America countries.

*Biological Diversity*—USAID is a leader in assisting LAC countries to conserve and utilize their biological resources in a sustainable manner. Our programs have improved protected areas management, safeguarded key watersheds that provide drinking water for urban populations, strengthened local NGOs and community groups, assisted indigenous communities in securing land tenure rights, and provided environmentally-friendly economic alternatives for local people. For example, the Parks in Peril program—a partnership among USAID, The Nature Conservancy, local NGOs and local governments—builds local capacity to conserve biological diversity in protected areas throughout Latin America and the Caribbean. During the past ten years, the program has improved protection at thirty-seven park sites covering over twenty-eight million acres containing globally significant biodiversity. So far twenty parks have been transformed into fully-functioning protected areas that require minimal donor assistance. Equally significant, USAID has assisted twenty-seven local conservation NGOs to become self-sufficient organizations with effective voices in their countries for sound environmental management.

*Environment Endowments*—USAID has been a global leader in establishing and strengthening locally-managed environmental endowments. These endowments provide long-term sustainable financing to fund the proposals of local environment NGOs and community groups. USAID has strengthened and served on the Board of The Enterprise for the Americas Initiative's (EAI's) seven environmental trust funds (in Argentina, Bolivia, Chile, Colombia, El Salvador, Jamaica and Uruguay), totaling over \$175 million. USAID also led the creation and capitalization of additional environmental trust funds in Ecuador, Guatemala, Honduras, Jamaica, Mexico, and Panama and has leveraged \$42.8 million to support these endowments.

*Industrial Pollution Prevention*—Industrial pollution impairs human health, degrades economically important ecosystems, and decreases the competitiveness of LAC businesses in a global economy. USAID supports pollution prevention and cleaner production activities in seven LAC countries. These help to: (a) increase awareness of the economic and social benefits of cleaner production, (b) develop regulatory frameworks that favor pollution prevention over end-of-pipe pollution control, (c) build local capacity for advancing cleaner production, and (d) increase available investment capital by educating lenders about the financial soundness of the pollution-prevention approach.

In our programs we have clearly demonstrated that pollution-prevention practices are a win/win approach—reducing pollution while enhancing business performance. Pollution is often the result of not efficiently using and recycling resources. Pollution-prevention technologies can reduce the consumption of water, energy, and raw materials—improving production efficiency and reducing business costs. In Bolivia for example, eleven plants invested \$131,000 in pollution prevention and generated annual savings of nearly \$228,000, a seven month payback on investment. In the process they reduced the amount of pollution they produced by seventy percent. In Ecuador, sixteen plants invested approximately \$4 million and generated annual savings of more than \$5 million, a ten month payback on investment.

*Water Management*—LAC governments are increasingly decentralizing the provision of water supply and sanitation as part of broader reforms. USAID has taken the lead in developing low-cost, low-maintenance water supply and sanitation models for small municipalities in Central America and the Dominican Republic. In El Salvador, USAID has helped protect watersheds to increase water supplies, reduce surface and groundwater contamination, decentralize potable water authorities, and create sustainable local water groups. USAID's approach to providing rural water and sanitation services has strongly influenced the Inter-American Development Bank (IDB) water sector loans in El Salvador and the Dominican Republic. During the past two years in El Salvador, nine municipalities have developed water-resource management plans, twelve municipalities have implemented potable water systems, sixteen have constructed or rehabilitated water systems, five hundred households have adopted improved wastewater management, and soil conservation practices and tree planting have stabilized nearly 12 thousand acres of land.

*Urban Development*—LAC is marked by a concentration of political power, economic wealth, and opportunity in capitals and the largest cities. USAID programs have focused on promoting decentralization of political, administrative, and fiscal authority to local municipalities so that local people have the authority and resources to address their needs, including environmental services. USAID's efforts at increasing the availability of financing for urban infrastructure provide an example of the success of our approach. In 1993, the Municipal Infrastructure Finance Program was launched by USAID in partnership with the Central American Bank for Economic Integration (CABEI), establishing a \$26 million credit fund. The program started in Guatemala and Costa Rica as a pilot. In 1999, the success of the program attracted an additional \$50 million in funding from Taiwan and Germany, and was extended to El Salvador, Honduras and Nicaragua: CABEI lends to public and private financial institutions, which in turn lend to municipalities to finance infrastructure projects such as potable-water and sewage systems, and solid-waste management. By the beginning of this year the program had financed three hundred sixty-four projects, benefiting over one million households.

#### V. PARTNERSHIP WITH OTHERS

The previous examples illustrate USAID's partnerships with other donors, host country institutions, the private sector; NGOs, communities, and other USG agencies. These partnerships are essential. Our programs are successful, but the problems are beyond the resources of any individual organization. Consequently, USAID's strategic planning focuses on engaging the interest and resources of others, providing guidance and leadership, and supporting innovations of others. Collaboration is so important to overall success in promoting sustainable development, that I would like to outline the basic components of our approach.

1. Build local capacity and commitment—Without local capacity the end of donor funding is the end of that activity. With it, not only does the program continue but also has the opportunity to expand and spread as it engages the resources and energies, and creativity of the host country and people.
2. Develop models that can be adopted by others—Practical, simple, and culturally appropriate models have the best opportunity for being disseminated and adopted on their own merit with minimal or no further external resources.
3. Form partnerships with NGOs, Universities, and other Federal Agencies—These institutions are the source of extensive technical expertise and commitment, which are complemented by USAID international development experience. USAID provides guidance based on our years of development experience, our in-country knowledge, and the framework of U.S. foreign-policy interests to create effective partnerships with U.S. entities for advancing our country's development assistance goals.
4. Encourage the "greening" of private investment—Private investment in the region far outstrips donor assistance. It is essential that these investments be environmentally sustainable. USAID helps countries develop capacity for evalu-

ating investment proposals, and assists in developing and promoting environmentally improved modifications and alternatives.

5. Cooperate with other bi-lateral donors and the Multilateral Development Banks—USAID's in-country presence and knowledge places us in a position to contribute to close donor coordination. USAID has been successful in providing the up front grant resources that host countries and International Financial Institutions (IFIs) frequently do not have for doing the analyses and pilot activities needed for the design of large loan programs. Developing a consensus among donors can also be essential in encouraging developing countries to make tough decisions and reforms necessary for sound development.

#### VI. CONCLUSIONS

In conclusion environmental degradation threatens sustained social and economic progress in the region, including aspirations in the region for a better life.

We will continue to maintain environment as a key element in our development strategy, and will continue to implement and build upon the approaches outline above. To make the most of limited resources and in recognition of the inter-sectoral aspects of environment and its relationship to poverty, we will continue to integrate environment goals into our economic, health, education, and democracy, programs.

Finally, we greatly appreciate this subcommittee's interest in environment and development issues and thank you for the opportunity to present our views.

Senator CHAFEE. Thank you, Mr. Leonard, very much, for your experience and words.

Mr. Joseph Eichenberger is the Director of the Office of Multilateral Development Banks, and is a long-time expert in economic affairs in Latin America. Welcome, Mr. Eichenberger.

#### **STATEMENT OF JOSEPH E. EICHENBERGER, DIRECTOR, OFFICE OF MULTILATERAL DEVELOPMENT BANKS, U.S. DEPARTMENT OF THE TREASURY, WASHINGTON, DC**

Mr. EICHENBERGER. Thank you, Mr. Chairman. On behalf of the Treasury Department I greatly appreciate the opportunity to discuss the role of the Multilateral Development Banks (MDB) in addressing environmental degradation in Latin America.

I also want to take this opportunity to express our sincere thanks to you, Mr. Chairman, for your active support and leadership with respect to two Treasury programs of particular significance in dealing more effectively with major environmental challenges. Those programs are the Global Environment Facility and the Tropical Forest Conservation Act. Both are enormously important programs and both have benefited greatly from your active interest and close engagement.

These institutions, the World Bank, the Inter-American Development Bank and the Global Environment Facility, are making important contributions, both directly and indirectly, to efforts to deal more effectively with such key challenges as air and water pollution, biodiversity conservation, forestry preservation and land degradation.

Directly, the institutions are major lenders for environmental purposes in Latin America, together providing over \$1.6 billion in loans and grants in 1999 alone. Indirectly, each is working to promote the policy and institutional reforms needed to create a foundation for environmentally sound growth over the long-term.

The Treasury Department has been actively engaged for more than a decade in helping to shape MDB policy and project decisions related to these environmental challenges. We have benefited

greatly in these efforts from the keen ongoing interest of Congress and civil society groups of all kind.

I also want to acknowledge USAID's expertise on environmental issues and the very helpful collaboration it has had with both us and the MDB's on the full range of environmental issues.

I believe it is fair to say that these shared efforts have produced major progress, and that the environmental efforts within the banks have been advanced substantially.

But it is also fair to say that there have been disappointments. There is clearly still a great deal of work to be done, and continued strong U.S. leadership will be essential.

My colleague, Carl Leonard, has spoken directly, and I think effectively, about the key environmental challenges in Latin America. I request that my complete written statement be placed in the record and I would like to focus my oral remarks more specifically on MDB efforts to address these challenges and on our priorities, U.S. priorities, for the MDB's going forward.

There is no question that the MDB's need to play a significant role in helping Latin America deal effectively with its urgent environmental challenges. Over the past decade, we have worked hard to ensure that the institutions take fully into consideration the direct impact of their projects on the environment. We have also given high priority to their important indirect role in helping strengthen indigenous institutions and the basic policies that are indispensable to achieving both environmentally sustainable development and enduring poverty alleviation.

Last year, the World Bank, the Inter-American Bank [IDB] and the Global Environment Facility [GEF] provided close to \$4 billion in loans, grants and technical assistance for environmental efforts worldwide. For Latin America, the IDB provided just under \$900 million for these purposes, the World Bank, about \$450 million; and the GEF about \$270 million, which includes some co-financing.

Most of the IDB and World Bank loans have been geared to address urban environment problems, to improve the supply of clean water and to promote pollution control. They have also provided technical assistance in such important areas as strengthening institutions, coastal resources management, watershed management, and natural resources conservation.

My full written submission identifies a number of specific projects that might be of particular interest to the subcommittee. These projects, and many others, I think, reflect the MDBs' efforts to find innovative approaches to environmental challenges, including by forming public/private sector partnerships. We have encouraged such work by the MDB's and we will continue to do so in the future.

I would like to spend a moment on the Global Environment Facility, which is the primary international funding mechanism to address global environmental challenges.

Since 1991, the GEF has provided close to \$570 million in grants for operations in Latin America, leveraging an additional \$1.3 billion in co-financing for such projects as, most recently, demonstrating economically viable renewable fuel technologies in Brazil in cooperation with General Electric, and a multi-country effort to



reduce pesticide runoff into the Caribbean by improving management practices.

In these and other areas, the GEF seeks to maximize its impact by focusing on innovative solutions to cross-border problems and by collaborating closely with other institutions, such as the World Bank, to multiply the effect of its limited resources.

The formula is working. In 1999, for example, every dollar provided by the United States leveraged approximately ten additional dollars from other donors, including recipient governments and the private sector. What was a pilot program just a few years ago has established a growing record of results and has garnered growing support for its efforts. And again, we greatly appreciate the strong support you, in particular, have given to the GEF, Mr. Chairman.

Yet, the GEF's ability to achieve its mission is being severely limited by the financial constraints arising largely from our inability to deliver on U.S. financial commitments. U.S. arrears to the GEF now total \$204 million, and they will expand further if the funding levels contained in the current appropriation bills for fiscal year 2001 are maintained. The impact of U.S. arrears is further magnified by the fact that other countries are holding back their contributions until we deliver on ours.

The bottom line, Mr. Chairman, is that the GEF may find itself unable to make any new operational commitments beyond the fourth quarter of this year in the absence of some significant new U.S. funding.

With respect to the MDB's—the World Bank and the Inter-American Bank—our efforts to promote environmental soundness have focused on several key areas. First, integrating environmental considerations thoroughly into project design. Second, increasing the amount of financing for environmentally beneficial projects. Third, implementing stronger environmental policies fully and strengthening them where that is needed. Finally, ensuring greater transparency and effective civil society participation in bank operations.

We have achieved much at the World Bank. Operational requirements for environmental analysis are now widely considered to be among the strongest of their kind. Public consultations are mandatory in most cases. The Bank has an information policy based on a presumption of disclosure.

There is a centralized unit at the bank for environment and sustainable development, as well as specialized staff located throughout the operational units. And in the private sector area, the Bank's investment insurance arm, Multilateral Investment Guarantee Agency [MIGA], has formally adopted new environmental and disclosure policies.

At the IDB, I would note, in particular, a series of specific policies on water resource management, coastal management, forestry and agriculture. The IDB, as has the World Bank, has created an independent Inspection Panel to give a voice to local people who feel that their interests have been adversely effected by IDB projects. There is a greater operational emphasis on energy efficiency. Environmental units now exist throughout the organization's regional and operations departments. Most recently the IDB has pursued what we think is an exemplary process for consulting with civil society as it develops a new energy policy.

I think the record is one of progress in the organizations, but there is no question that more remains to be done. Both institutions need to make further progress in integrating environment more thoroughly into their operations. Information disclosure policies and the Inspection Panels in these institutions are being reviewed for further improvements. We expect to be fully engaged in this exercise to achieve those improvements.

Consistent implementation of the various safeguard policies and enforcement of bank procedures are a key U.S. concern. The banks are aware that they need to do more to make this a reality.

I would point out, Mr. Chairman, that the G-7 finance ministers, as part of the Okinawa economic summit, recently agreed to a slate of MDB reforms which I think constitutes a very substantial agenda for further progress. Among these is agreement that the MDB's need to focus more resources on the provision of global public goods, including global environmental goods. I would be happy to share that reform agenda with you if you are interested.

In conclusion, Mr. Chairman, the Treasury Department is absolutely committed that U.S. support for the MDB's helps to protect the environment and the natural resources in Latin America and the Caribbean and beyond. We have a clear strategic interest in helping our neighbors in the hemisphere achieve growth that also protects the environment. And we believe that we have a unique opportunity to do so through institutions that we have helped shape for as much as 50 years. I would be pleased to answer any questions that you have. Thank you.

[The prepared statement of Mr. Eichenberger follows:]

#### PREPARED STATEMENT OF JOSEPH E. EICHENBERGER

Mr. Chairman, Ranking Member Dodd, and distinguished Members of the Subcommittee.

Thank you for the opportunity to discuss the important role of the multilateral development banks (MDBs) in addressing environmental degradation in Latin America. The Inter-American Development Bank, the World Bank, and the Global Environment Facility are playing a key role, both directly and indirectly, in the region to address such issues as: air and water pollution, biodiversity conservation, forestry preservation, ozone depletion, and land degradation. Directly, the institutions are major lenders for environmental purposes, together financing over \$1.6 billion in Latin American in FY 1999. Indirectly, all are involved in promoting the policy and institutional reforms. The World Bank has rightly said, "... lasting poverty reduction is only possible if the environment is able to provide the services people depend on and if natural resource use does not undermine long-term development." We can all agree on that common sense principle.

The Treasury Department is actively engaged in MDB policy and project decisions related to environment and we have been successful in promoting a stronger environmental agenda within the banks. We have benefited greatly in these efforts from the keen on-going interest of Congress and civil society groups. I also want to acknowledge USAID's expertise on environmental issues and the very helpful collaboration it has had with us and the MDBs on a wide range of issues. But that said, there is clearly still a great deal of work to be done, and continued strong U.S. leadership will be essential. Today, I will focus my remarks on three main topics:

- I. The key environmental challenges in Latin America;
- II. MDB efforts to address these challenges; and
- III. U.S. priorities for the MDBs going forward.

#### I. KEY ENVIRONMENTAL CHALLENGES IN LATIN AMERICA

In Latin America, as elsewhere, natural resources have traditionally been viewed as a basis for revenue generation and economic growth, with important sustainability issues typically relegated to secondary status. Over time, this has led to over

exploitation of the natural resource base upon which many of these economies depend. Fortunately, the view in the region is changing, as democracy has taken stronger hold, and as the basic economic logic of conservation and sustainable development has become better understood.

Meeting an increasing demand for energy is one of the biggest environmental issues faced by Latin American today—be it through the use of forests as a fuel source or emissions from power generators, rural and urban areas suffer the associated environmental impacts of energy production and usage. Urban air pollution remains a key human health and environment issue, as does water pollution in densely populated areas. Much of the region's biodiversity resources are under threat from forest loss, soil depletion, water pollution, fisheries exploitation, land degradation from poor agricultural practices, unsustainable forestry practices, and overgrazing. The use of persistent organic pollutants (e.g., DDT), with their insidious impacts, is also another major challenge for the region.

The reasons for these problems are multiple and complex. Lack of institutional capacity has long been a constraint to implementing environmental policies and programs, and to managing the environmental implications of growth and development. In many cases, government policies in areas such as land use and energy pricing have directly encouraged activities that are contrary to sound, long-term resource management. Latin America's welcome efforts to build market-based economies have in some important respects outpaced its efforts to build capacity to regulate and monitor natural resource use and enforce environmental laws. Poverty itself can be directly responsible for unsustainable resources use, leading to a vicious cycle of need and overexploitation.

## II. MDB EFFORTS TO ADDRESS ENVIRONMENTAL CHALLENGES

We believe the MDBs need to play a significant and multifaceted role in helping Latin America deal effectively with these urgent environmental challenges. Over the past decade, we have worked hard to ensure that the MDBs take fully into consideration the direct impact of their projects on the environment. We have also given considerable emphasis to the important role of the MDBs in helping strengthen institutions across the region responsible for implementing and developing sound environmental policies for sustainable development and poverty alleviation.

With substantial leadership from the U.S., the Inter-American Development Bank, the World Bank, and the Global Environment Facility have dedicated significant amounts of resources to environmental protection. Globally, in 1999, these MDBs have provided close to \$4 billion for environmental efforts. For the region, the figures are also impressive. Despite the appropriate priority given to managing the financial crisis, in 1999 the IDB approved \$894 million in loans for environment and natural resources, or 9 percent of the Bank's overall lending total. FY 1999 World Bank lending in the region for environment totaled approximately \$458 million.

Both institutions have used loans, grants, and technical assistance to build diverse environmental portfolios in the Latin American and Caribbean region, with some very innovative projects. Most of the IDB and World Bank environmental loans in the region have been geared to address urban environment problems, improve the drinking water supply, and pollution control. They also provide technical cooperation to countries, in such areas as pollution control, institutional strengthening, coastal resources management, watershed management, and natural resources conservation.

To highlight several projects in particular:

- The IDB's Multilateral Investment Fund (MIF) and the Nature Conservancy co-sponsored the EcoEmpresas Fund to invest risk capital in NGOs, microenterprises, and small businesses that work to preserve the environment while making a profit. The IDB received a special recognition award from the Nature Conservancy for its work on this project.
- The IDB's Inter-American Investment Corporation (IIC) and a U.S.-owned environmental service provider have formed a strategic partnership to handle industrial waste and harness the recovered energy resources from waste material.
- The IDB is also supporting the Coastal Resources Management program in Ecuador with the assistance of the University of Rhode Island Coastal Resources Center.
- A World Bank Clear Air Initiative in Latin America will bring together city managers, development agencies, leaders from public sectors, and NGOs to address air quality problems in large metropolitan areas. This three-year program covers issues of environment, urban, transport, health, energy, industrial pollu-

tion, and global emissions, as they relate to the quality of the air in the cities of the most urbanized region of the developing world.

- The Meso-American Biological Corridor is a multidonor initiative which includes the World Bank and GEF investments in Belize, Costa Rica, El Salvador, Honduras, Mexico, Nicaragua, and Panama. This initiative is helping to protect the countries' terrestrial and marine ecosystems through a variety of projects, including by training indigenous peoples in natural resource management.
- In Mexico, the World Bank supported a project to test whether small- and medium-sized enterprises can successfully adopt environmental management systems. The project enlisted the private sector, local academic institutions, and the Mexican Government.

These projects, and many similar projects reflect the MDBs' efforts to find innovative approaches to environmental challenges, including by forming public-private sector partnerships. We have encouraged such work by the MDBs as a concrete application of their particular assets and capabilities.

#### *Global Environment Facility*

The Global Environment Facility (GEF) has emerged as the principal international funding mechanism to address global environmental challenges (e.g., international waters, biodiversity, ozone depletion, and climate change) facing developing countries and nations transitioning to market economies. Since its creation in 1991, the GEF has provided close to \$570 million directly in grants for operations in Latin America, which has leveraged \$1.3 billion in cofinancing.

The GEF financed \$270 million, including co-financing, for Latin American projects in FY 1999. In 1999, every dollar provided by the U.S. has leveraged approximately \$10 from recipient governments, other bilateral donors, the private sector, and other multilateral institutions.

Examples of GEF Projects in Latin America include:

- Renewable fuel technology is being developed in Brazil. The GEF has worked with the Brazilian Government, General Electric, and private Brazilian companies to develop and demonstrate generating technology that uses wood chips from plantation forests for fuel.
- GEF is working with Colombia, Costa Rica, Panama, and Nicaragua to reduce pesticide runoff to the Caribbean Sea by developing and implementing management practices and national regulatory systems to control the use of pesticides and promote the use of alternative pest control systems.
- In Argentina, GEF is financing work with fisherman and tour guides off the Patagonian coast to develop a plan enabling profitable fishing while protecting endangered whales, elephant seals, and penguins.

The GEF seeks to maximize its efficiency and impact by collaborating closely with other institutions, including the World Bank. In FY00, for example, joint World Bank-GEF projects equal to \$264 million were approved. In response to a new GEF policy supported by the United States, the regional development banks are preparing to implement GEF projects. The IDB has already proposed its involvement in two projects, a coastal zone management program in Jamaica and a technical assistance project in the Gulf of Honduras.

However, the GEF's ability to achieve its mission is being severely limited by financial constraints arising largely from the U.S. inability to deliver on our financial commitments. U.S. arrears to the GEF now total \$204.2 million, and will expand further if the low funding levels contained in the current Foreign Operations Appropriations bills for FY01 are maintained. The impact of U.S. arrears is further magnified by the fact that other countries are holding back their contributions until the U.S. makes a substantial contribution. The bottom line is that the GEF may find itself unable to make any new operational commitments beyond the fourth quarter of this year in the absence of some significant new U.S. funding.

#### *Tropical Forest Conservation Act*

Though not a part of the MDB efforts on environment, the Tropical Forest Conservation Act (TFCA) bears mentioning. It is another priority in our environmental agenda. The TFCA, enacted in 1998, provides eligible countries the opportunity to reduce concessional debts owed to the United States, and at the same time generate funds to conserve or restore their tropical forests. While the debt reduction component of the legislation is modest, the amounts generated for tropical forest conservation programs are meaningful. For example, the roughly \$6 million that we have already set aside for Bangladesh's participation will leverage even more resources to conserve or restore its 1.5 million hectares of tropical forests, roughly half of

which are in the southwestern Sunderbans region and home to the world's sole genetically viable population of 400 Bengal tigers.

Of the 10 countries that have requested participation in the TFCA, six are from Latin America (i.e., Peru, Belize, El Salvador, Paraguay, Ecuador, and Costa Rica). Of these, Peru and Belize, have already been certified as eligible and are now entitled to discuss innovative debt swap mechanisms that could generate additional funds for tropical forest conservation programs.

### III. THE U.S. ENVIRONMENTAL AGENDA IN LATIN AMERICAN AND HOW WE ARE WORKING TO ENSURE MDB OPERATIONS REFLECT THIS

The U.S. has focused its efforts on MDB reforms in several areas to promote the overriding principle of environmentally sustainable development: (1) greater "mainstreaming" or integration of environmental concerns into regular operations of the MDBs; (2) more environmentally beneficial projects; (3) ongoing implementation of existing MDB operational policies on environment; (4) improvements in MDB policies regarding civil society participation; and (5) further enhanced transparency of the Bank's operations. We pushed for progress on these fronts in our negotiations to provide financial replenishment and have been pleased with progress in some areas.

At the IDB, many of the positive developments stem from U.S. leadership in the negotiations for the eighth replenishment of the IDB in 1994 to press the Bank to provide greater protection for the environment. The accomplishments are wide-ranging:

- Development of new policies related to the environment, such as water resource management, coastal management, forestry, energy and sustainable agriculture development, including a commitment to not finance commercial logging in moist tropical forests;
- Lending for environmentally beneficial projects. Lending for environmentally beneficial projects has remained relatively constant since the General Capital Increase (GCI) at around 9 percent of the Bank's portfolio. However, this figure may actually understate the environmental work of the Bank since many projects have positive environmental aspects even though the primary objective of the project is not environmental;
- Greater emphasis on energy efficiency. The Sustainable Energy Markets (SMSE) program, initiated in 1996, focuses on industrial energy efficiency, renewal and efficiency in urban transport. The program has mobilized around \$5 million in external donor funds to prepare efficiency projects for implementation. In addition, IIC and MIF, both members of the IDB Group, are financing pilot projects under this program;
- Consultation with affected people and inclusion of resettlement plans as part of environmental impact assessments; and
- Development by Management of an information disclosure policy and creation of an independent inspection mechanism that will investigate charges by local people that the Bank has failed to follow its own operational policies.

As a result of the negotiations for a capital increase of the Inter-American Investment Corporation (IIC) in 1999, the IIC adopted a new policy regarding environmental and labor review of projects. The IIC has also adopted the IDB inspection panel function and, in January 1999, a policy regarding information disclosure was approved for the first time.

The IDB has created environmental units within each regional operations department to integrate environmental considerations into project preparation and implementation. It has adopted procedures to deal with any resettlement that might be entailed by projects. The Bank has adopted a Strategy for Integrated Water Resources Management and an implementation action plan that focuses on internal dissemination and mainstreaming of environment into Bank operations. The IDB has improved its capacity to integrate environmental considerations into its projects and programs. We were pleased with the involvement of civil society in the IDB's development of an energy strategy. Going forward, we want to see the IDB put greater emphasis on lending for renewable energy and energy efficiency projects. The IDB needs to reinforce its program of consultation with civil society to ensure this is an integrated element in all its operations. In this regard, we are working closely with the Bank as it prepares a formal framework for consultation and public participation.

During the 1998 negotiations for the twelfth replenishment for the International Development Association (IDA-12)—the soft loan window of the World Bank, the U.S. pushed for a deeper set of reforms than those achieved in prior replenishments

to better mainstream environmental considerations into both IDA projects and its policy dialogue with borrowing countries. In particular:

- Adequacy of country environmental policies and regulations as a performance criteria for allocating IDA resources;
- Integration of environmental issues into all Country Assistance Strategies (CASs);
- Using National Environmental Action Plans as a key element when designing Bank operations; and
- Greater IDA collaboration with the Global Environment Facility.

It should also be noted that other World Bank affiliated institutions are showing progress on the environment. The Multilateral Investment Guarantee Agency (MIGA) adopted new environmental disclosure policies in 1999, which are being implemented. The International Finance Corporation (IFC) is also moving forward to better incorporate environmental concerns into its lending operations.

The World Bank has made noteworthy progress in mainstreaming environmental issues into the Bank's operations. Serious gaps remain, however. We do not consider the Bank to have lived up to the expectation that it would make strong efforts to mainstream environment throughout its regular operations, as required by the GEF's second replenishment agreement. A progress report on the mainstreaming efforts outlined in IDA-12 is due in December 2000, which we will be carefully analyzing to see what areas are lacking. In addition, the Bank's Environment Strategy, currently under preparation, provides a mechanism for securing a better commitment from the Bank to integrate environmental issues into all operations. As a result of strong U.S. advocacy, an independent Inspection Panel was created in 1994 to examine alleged violations of Bank policies in the preparation and implementation of projects. In the policy area, we are following closely the ongoing conversion of advisory directives into more formal operational policies, especially in the area of resettlement and indigenous peoples.

Enhancing the transparency of these institutions and increasing public participation in countries' development programs are central policy goals of the U.S., particularly in terms of the environment. We have been at the forefront in calling upon these institutions to increase their disclosure of information in a timely manner. Over the last five years there have been notable successes (e.g., disclosure of country assistance strategies by the World Bank, and public release of environment impact assessments by both the IDB and World Bank for projects with a significant impact on the environment before project appraisal/analysis missions leave for the borrowing country).

We believe there is much more room for improvement in both the IDB and the World Bank policies and practices related to environment. The Banks' record on consistent implementation of safeguard policies and enforcement of their own procedures is a key concern to the U.S. The Banks, to their credit, are also aware that they need to do much more to ensure that staff and management make this a priority. Though we have made progress in improving the quality of loan documents related to environment and resettlement and making them publicly available in a timely manner, in part due to the requirements of the Pelosi Amendment, we still find projects which do not meet the Amendment's standards. We subsequently oppose any offending projects, sending a clear message to Bank leadership. We will continue to use our voice and vote to urge the Banks to meet higher environmental standards in accordance with the provisions of the Pelosi Amendment.

In a broader context, we are calling for a reform agenda for the MDBs to enhance their focus on the provision of global public goods, including the global environment, as a more forwardthinking approach to poverty reduction and the links between it and our environment and natural resources. We believe the MDBs must move away from financing sectors/projects that the private sector can easily do on its own and focus more on social programs and international public goods that the private sector will not or cannot finance, such as the environment. We believe that the banks potentially have an enormous contribution to make in helping to push the frontier of international efforts to promote these kinds of goods, many of which will especially benefit developing countries. The GEF, obviously has a key role to play, but the World Bank and IDB also must show greater leadership in finding ways for the international community to better protect the global resource base we share.

#### IV. CONCLUSION

In concluding Mr. Chairman, I would like to emphasize the importance that the Treasury Department places on working to ensure that U.S. support of the MDBs helps to protect the environment and natural resources in Latin America, the Carib-

bean, and beyond. The U.S. has a strategic interest in helping our neighbors in the hemisphere achieve growth that also protects the environment. I would be pleased to answer any questions that you may have.

Mr. CHAFEE. Thank you, very much, Mr. Eichenberger, for your testimony on behalf of the multilateral development banks and what they can do to promote environment protection in Latin America and the Caribbean.

My first question is for Mr. Leonard. You said that the region is blessed with more fresh water per capita than any other region in the world. But during the last 50 years, it is also the region that has suffered the greatest decrease per capita.

The principle culprits are poor watershed management, misuse of agriculture inputs such as fertilizers and pesticides, the over-drawing of aquifers and the lack of wastewater treatment. These problems appear to be all things we can solve. And in later testimony, Dr. DeWalt will say that less than 10 percent of municipal waste water is treated.

And it seems to me that is where we should start: the very basic of all the problems that people care about. Treating wastewater I should think is primary.

In my city, Warwick, of course, we are upgrading our sewage treatment plant, not the primary treatment, not the secondary, but the tertiary treatment as clean as the stream that runs by it. And your testimony indicates that wastewater in the region is flowing into water bodies completely untreated. Do you agree that that is a good place to start? And what can we do about it?

Mr. LEONARD. Absolutely, Mr. Chairman. The problems of wastewater treatment, sanitation, portable water are serious challenges in the region. And it is a byproduct of rapid urbanization. But there are also issues with rural water systems.

We are working in USAID to encourage the installation of improved water systems, sanitation systems. A major effort is underway now in Central America in the aftermath of Hurricane Mitch with the supplemental resources we received from the Congress, in Honduras and Nicaragua. That is a major focus of attention of ours.

Similarly, we are working in our programs of local governments, municipal development. Very frequently what citizens most demand on their list of priorities is improved water and sanitation.

So as we work with local government to improve their capacity to respond to citizen needs, we have a number of activities underway in the sector. It is a very important sector. The needs are enormous. We are pleased that the multilateral banks are also heavily engaged in providing resources for this need. But the figures of 90 percent of wastewater released untreated are staggering. We have a long way to go.

Mr. CHAFEE. I would assume since you have been studying this region since 1971 when you were a backstop officer for Brazil, is that accurate?

Mr. LEONARD. That is correct, sir.

Mr. CHAFEE. That you have seen over the years some changes, as you have traveled through the region? Or is it still a tough road ahead?

Mr. LEONARD. Taking the long view, my almost 30 years with USAID, I have seen tremendous change in the region, most of it positive. If you look at where the region was in 1971 in terms of democratic governance, we have come a long way. When you look at where we have come on infant mortality rates, child mortality rates, access to primary education, if you look at economic growth rates, there are a number of very encouraging developments.

But the degradation of the environment is one area where the trends are going the other way, where we have not arrested those declines and much more needs to be done.

But looking back over the time I have spent in Latin America, I am certainly one that feels that tremendous progress and achievements have been realized.

Mr. CHAFEE. And one last question. From your resume, it says you have been all over the area: Brazil, Bolivia, Peru, the Caribbean, Honduras, El Salvador, and Costa Rica. Can you give a synthesis across the continent, who is doing well and who is not doing well?

Mr. LEONARD. Well, I think, you know, I spent a lot of time in Central America.

Mr. CHAFEE. Where are the biggest challenges and who has the will at present to address these environmental concerns?

Mr. LEONARD. I think Central America has made a great deal of progress. I think South America countries like Bolivia in confronting narco trafficking, they have made great progress. I think there are real challenges in places like Colombia which you mentioned where a combination of threats and multiple factors give rise to concern. There are certainly serious challenges in places like Haiti. So, I guess, the places where I worry most, where the challenge seems greatest, I would put Haiti and Colombia in that order. But I see reason to be optimistic throughout the region in Central America and South America.

Mr. CHAFEE. Thank you. And, Mr. Eichenberger, in your testimony, you lamented the funding situation with respect to our foreign operations appropriations bills. If we fulfill our commitments, do you believe that would bring greater progress to some of the areas that we are discussing in this hearing?

Mr. EICHENBERGER. Yes, Mr. Chairman, I think it would for a variety of reasons. With respect to the GEF, which I mentioned specifically, that money goes directly to fund on grant terms a variety of environmental investments in environmental issues that I think, generally speaking, would not have been made otherwise. There clearly is an important leveraging issue here with respect to U.S. funding.

As I noted, one dollar from the United States generates, attracts, ten additional dollars from other donors. So to the extent that we are in substantial arrears to this organization, there is clearly a negative ratcheting effect on the GEF's capacity to do the kind of work that it was created to do. So, \$200 million of U.S. arrears with that degree of leveraging translates into a great deal of work that is not being done.

With respect to the multilateral banks more broadly, we have made substantial progress in recent years in reducing our arrears.



At one point, they were in excess of \$800 million. We reduced them last year down as low as about \$350 million.

Unfortunately, we have taken a turn back in the wrong direction and arrears have now gone up in the MDB's, including the GEF, to about \$450 million and threaten to go up further at the of funding levels that the House and Senate are now talking about.

The issue for us really is one of the capacity to continue to exercise leadership in these organizations. I think it is no stretch to say that it has been active and aggressive U.S. advocacy in these organizations over a period of years that has led to the greater environmental sensitivity and has led to strong environmental policies. U.S. advocacy has led to a change in the internal debate in these organizations about what really matters for environmental development. Our concern is to maintain that leadership, and we do so in part by meeting our financial commitments. Thank you.

Mr. CHAFEE. Do these developing countries have the expertise to do the right thing once they get the money, for example, are they able to build the proper wastewater plants, or to properly address some of the land use issues associated with Hurricane Mitch, which caused such devastation? We have all learned through trial and error here in this country. We would hate to see them make the same mistakes. Common sense will tell you it should be a natural partnership as we move forward; to take what we have learned, the mistakes that we have made, and helping our neighbors make sure they do not make them. Beyond money, do they have either the will or the capacity and know-how to address these problems?

Mr. EICHENBERGER. Well, I think that there is no question that capacity is a real issue. And it is a real issue not just with respect to environmental issues, but, for example, education and primary health and so forth.

That is clearly recognized, both in the borrowing countries themselves and in the institutions. It is for that reason, in part, that the institutions are trying to shift a great deal of their emphasis toward making investments in what they refer to as capacity building—building the institutions and the human capacity to implement programs in a consistent way that produces results. There is no question that we are not there yet.

I would point out a couple of things that I think are very promising. Carl spoke earlier of the importance of partnerships. One of the very important developments, I think, over the past 5 years is the much greater willingness and interest of the multilateral development banks to reach out to the private sector for partnerships. Because there is a huge amount of expertise there—American firms and in other firms—innovative solutions are being found that are highly promising.

For example, bank research indicates that one of the most serious obstacles to effective provision of clean water is the fact that initial investments are allowed to go to seed because maintenance money is not paid over a period of years. The organizations are working with countries to essentially engage private sector operators in doing the maintenance, doing the metering, doing the repairs. That has had the effect of preserving the value of the original investments. It is just one example where those partnerships

can help, and at the same time, build the capacity to deal with problems as they arise.

Mr. CHAFEE. Thank you, very much. Thank you, gentlemen, very much. We will take a short break and convene the second panel, just a minute or two at your convenience. Thank you, gentlemen, very much.

Mr. LEONARD. Thank you, Mr. Chairman. Look forward to working with you in the future.

[Pause.]

Mr. CHAFEE. Welcome once again. I would also like to ask if everybody can hear in the back, because there is nothing worse than being at a hearing where you cannot hear. And if anybody cannot hear, raise their hand. I will make sure that whoever is speaking gets closer to the microphone or speaks up. I have been to many a hearing where you could not hear.

Welcome, Mr. Watson and Dr. DeWalt. I look forward to your testimony. Mr. Watson is the vice president and executive director for International Conservation at The Nature Conservancy located here in Arlington, Virginia. And a distinguished career. We look forward to your testimony. Welcome.

**STATEMENT OF THE HONORABLE ALEXANDER F. WATSON,  
VICE PRESIDENT AND EXECUTIVE DIRECTOR FOR INTERNATIONAL  
CONSERVATION, THE NATURE CONSERVANCY,  
ARLINGTON, VA**

Mr. WATSON. Thank you very much, Mr. Chairman. And thank you very much for inviting The Nature Conservancy to present some views before this subcommittee. I would like to commend the subcommittee for addressing this sensitive but crucially important relationship between economic development and conservation of precious natural resources in Latin America and the Caribbean. And I think Carl Leonard did a nice job of explaining why these issues are so closely related and why we in the United States have a responsibility to try to address them.

With your permission, sir, I would like to summarize the key points of my remarks and submit the balance for the record.

Mr. CHAFEE. No objection.

Mr. WATSON. The Nature Conservancy's mission is the protection of plants and animals that make up the natural world, what is commonly referred to as biological diversity or biodiversity, primarily through the protection of habitats of those plants and animals.

And in my written statement, I touched on the enormous biological and economic importance of biodiversity and some of the most serious threats that biodiversity faces in Latin America and the Caribbean. So I will not go into those here.

Rather, I will discuss very briefly how The Nature Conservancy addresses these issues overseas. The Conservancy works mainly domestically. And as I think you know, Mr. Chairman, we have chapters in all 50 states in the United States.

But we have long recognized the need to work with the world's greatest biodiversity which is beyond our borders, chiefly in the tropics. The Conservancy operates in 19 countries in Latin America and the Caribbean as well as others in Asia, Oceania and in Can-

ada. We also work indirectly in a couple of other Western Hemisphere countries such as El Salvador and Argentina through regional projects and liaison relationships without having formal conservation programs in those countries.

Since the beginning of our international program in 1981, we have helped protect more than 74 million acres of biologically significant land in Latin America and the Caribbean. Funding for the Conservancy's work is 92 percent from private sources. In fact, we are currently engaged in a campaign to raise 1 billion private dollars for conservation.

Nevertheless, it is important to underscore that the funding that the Conservancy receives from the Agency for International Development is crucial to our success in Latin America and the Caribbean. And we urge members of the committee to support appropriations requests for international conservation in the AID budget as well as to fund the U.S. contribution to the Global Environment Facility mentioned by the representative from the Department of the Treasury a minute ago. And also to expand the excellent and growing international programs of such U.S. agencies as the Fish and Wildlife Service, United States Forest Service and the National Oceanic and Atmospheric Administration as well as the Environmental Protection Agency.

And we applaud the leadership that the Congress has displayed in enacting the Tropical Forest Conservation Act which is essentially a congressional initiative and appropriating funds for its implementation. And we also welcome the growing interest of many Senators and Representatives in protecting coral reefs and other coastal marine environments.

Internationally, the Conservancy identifies highly important natural areas and helps local organizations build the capacity to protect those areas over the long term. We try to strengthen local institutional capacities, build conservation infrastructure, conduct scientific research and involve local people in community based conservation.

Our goal is to foster strong and sustainable local conservation organizations, usually private and nonprofit organizations, that will involve local communities in enduring protection of their country's most precious natural heritage. These efforts, of course, also contribute to strengthening civil society.

We seek market oriented solutions to conservation issues involving all legitimate stakeholders in those issues. We collaborate closely with the multilateral development banks, including the Inter-American Development Bank, with whom we have created a pioneering fund called the EcoEnterprises Fund which is to support and invest in environmentally sound enterprises in the hemisphere that will generate resources for non-government organizations to undertake conservation work. And we also try to take lessons we have learned from our extensive work in the United States and apply those in Latin America and the Caribbean.

For instance, conservation easements and tradeable development rights are concepts that have been used for years in the United States to protect important land and water. And with the help of some brilliant colleagues in Costa Rica, we are introducing some of these concepts to other countries in the hemisphere. Their jurispru-

dence does not contain these ideas at this point. And this effort has had an enormously positive reception. It involves private sector people in conservation directly without necessarily having to rely on the actions of government.

But the flagship of the Conservancy's conservation program in Latin American and the Caribbean has been the Parks in Peril program that Carl Leonard mentioned a minute ago. It has received important funding from AID as well as private resources. It is important to note that the AID money through us leverages considerable private resources for this program.

Many of the parks and nature preserves where we work were initially created by local governments in areas that were relatively distant from intensive settlement or development; hence, in most cases they were largely unspoiled. But in our work we have seen the effects of increased economic pressures even at these protected sites. Among the greatest threats to conservation of biodiversity, as Carl Leonard pointed out a minute ago, are inappropriate unsustainable agriculture and destruction of coastal marine areas.

The Parks in Peril program converts what are often in effect only paper parks—that is to say parks that exist on maps but not in reality—into well-managed protected areas capable of resisting the destructive pressures they face.

Of course, the Conservancy strongly supports economic development in Latin America and the Caribbean and other developing regions. And we do not believe that development has to be at the expense of conservation of countries' natural resources.

In fact, we believe that development and conservation are mutually dependent. Unless biological and other resources are managed carefully and protected, development in countries highly dependent on natural resources, as most developing countries are, will soon run dry.

And yet, unless development provides economic alternatives for the poor, they will be forced to consume natural resources on an unsustainable basis and conservation efforts will be thwarted.

So we all must strive to assure that development and conservation are mutually supportive.

Finally, Mr. Chairman, I would like to take this occasion to express the hope that the full committee will be able before recessing for the year to send forward to the Senate—for its favorable advice and consent—those conservation-related international agreements that are pending before the committee and which I believe are not contentious. I am referring specifically to the Sea Turtle Convention, on which I believe there were hearings a few days ago, and the special protected areas and wildlife protocol to the Cartagena Convention. Thank you, very much, Mr. Chairman, for the opportunity to be here today.

[The prepared statement of Mr. Watson follows:]

#### PREPARED STATEMENT OF HON. ALEXANDER F. WATSON

Mr. Chairman, with your permission I will summarize the key points of my remarks and submit the balance of my testimony for the written record.

#### SUMMARY

The Nature Conservancy's mission is the protection of the plants and animals that make up the natural world, what is commonly referred to as biological diversity

or biodiversity, primarily through protection of their habitat. We work mainly domestically, but we have long recognized the need to work where the world's greatest biodiversity is found—beyond our borders, chiefly in the tropics. The Conservancy operates in 19 countries in Latin America and the Caribbean, as well as others in Asia and Oceania. We also work indirectly in additional Western Hemisphere countries, such as El Salvador and Argentina, through regional projects and liaison. Since the beginning of our international program in 1981, we have helped protect more than 74 million acres of biologically significant land in the Western Hemisphere alone.

Funding for the Conservancy's work is 92 percent private. In fact, we are currently engaged in a campaign to raise one billion private dollars for conservation. Nevertheless, the funding the Conservancy receives from the Agency for International Development (AID) is crucial to our success in Latin America and the Caribbean. We urge Members of the Committee to support increased appropriations for international conservation: in the AID budget, as well as to fund the U.S. contribution to the Global Environment Facility (GEF), and to expand the excellent international programs of such U.S. agencies as Fish and Wildlife Service (FWS), United States Forest Service (USFS), National Oceanic and Atmospheric Administration (NOAA), and Environmental Protection Agency (EPA).

Internationally, the Conservancy identifies highly important natural areas and helps local organizations build the capacity to protect those areas over the long term. We strengthen local institutional capacities, build conservation infrastructure, conduct scientific research and involve local people in community-based conservation. Our goal is to foster strong and sustainable local conservation organizations—usually private and non-profit—that will involve local communities in enduring protection of their countries' most precious natural heritage. These efforts also contribute to strengthening civil society.

The flagship of the Conservancy's conservation program in Latin America and the Caribbean has been the Parks in Peril (PiP) program, which has received important funding from AID and private sources. Many of the parks and nature preserves where we work were initially created by the local governments because they were relatively distant from intensive settlement or development, hence in most cases largely unspoiled. But in our work we have seen the effects of rapid economic pressures even at these protected sites. Among the greatest threats to conservation of biodiversity are inappropriate, unsustainable agriculture and the destruction of coastal marine areas.

Of course, the Conservancy supports economic development and we believe development does not have to be at the expense of conservation of countries' natural resources. In fact, we believe that development and conservation are mutually dependent. Unless biological and other natural resources are managed carefully and protected, development will soon run dry. Yet, unless development provides economic alternatives for the poor, they will be forced to consume natural resources on an unsustainable basis.

Finally, Mr. Chairman, I take this occasion to express the hope that the full Committee will be able before recessing for the year to send forward to the Senate—for its favorable advice and consent—those conservation-related international agreements that are pending before the Committee and uncontroversial.

#### THE IMPORTANCE OF INTERNATIONAL BIODIVERSITY

People in developing countries rely on living natural resources for a multitude of economic and social benefits, and the rest of the world, including the United States, also receives benefits from them. Biological diversity is critical for the pharmaceutical industry, agriculture and a wide variety of other industrial activities. According to a study by the World Resources Institute, 4.5% of the U.S. Gross Domestic Product is due to economic benefits from wild species. Genetic diversity used in plant breeding accounted for about one-half of all the gains in agricultural yields in the U.S. between 1930 and 1980. Major U.S. crops now depend on infusions of new genes from plants found in nature. One quarter to one third of all the prescription drugs in the U.S. contain compounds derived from wild species. 120 prescription drugs currently come from about 95 species of plants; of these, 39 grow in tropical forests. Botanists believe that more than 35,000 plant species (mostly drawn from tropical forests) provide traditional medicines to local peoples and, hence, are good candidates for future pharmaceutical research. Only about 2 percent of plants have been examined for medicinal properties. There is no way to know what new cures we may be losing with each species that goes extinct or what the health care costs can be of remedies never developed.

These biological resources are increasingly imperiled. Even here in the rich nations of the North, where parks and nature preserves are generally well protected, pressure on many forms of biodiversity is rising. In the United States, on which the Conservancy recently completed an unprecedented study of national biodiversity status and published the results in the book *Precious Heritage*, about 14 percent of bird species are at risk, 16 percent of mammals, 37 percent of freshwater fish, and 69 percent of freshwater clams and mussels (*Precious Heritage*, p. 102). In the poorer countries of the developing world, the situation is worse. Biodiversity decline, often caused by migrating populations with no economic alternatives to living off the land, increases rapidly once the frontier of development reaches areas formerly isolated by distance, lack of roads, difficult climate and poor soil. All too often, the destruction of natural resources, including biological resources, does not even bring local people the benefit they hope for—sustained economic development. Instead, the land is ravaged for a quick return, and the survivors must either move on or face a grimmer poverty than before.

The Western Hemisphere tropics are particularly notable for their forests. Such forests are at the heart of world biodiversity. There may be 10 million species in the world. Tropical forests house between 50 and 90 percent of the total. About 17 million hectares of tropical forests—an area four times the size of Switzerland—are being cleared annually. E. O. Wilson, the great Harvard biologist, has estimated that at current rates of forest destruction one-tenth to one-quarter of all tropical rain forest species may disappear within 30 years.

Tropical forests are by no means the only threatened Western Hemisphere ecosystem. For instance, freshwater ecosystems are often the hardest hit of all, as they battle long-term water shortages and pollution caused by population growth, expansion of settled areas, increased irrigation, and economic development without needed environmental protections.

Coastal and marine systems face serious loss and degradation in the continental and insular territories of the United States, as well as many countries in the Caribbean, Asia and Oceania. Coral reefs are facing threats never faced before. Coral reefs are so rich in biological diversity that they are often referred to as the “rain forests of the sea.” Irresponsible extraction and trade of both seafood and decorative marine life, deforestation and inadequate construction and industrialization, together with global climate changes not well understood, are putting many coral reefs at the brink of extinction for the first time in human history. We welcome the interest shown in protecting coral reefs by many Senators and Congressmen, and the Administration’s commitment to do more to protect marine systems, especially coral reefs, as shown by the work of the Coral Reef Task Force and the programs of NOAA.

The true economic value of biological, and other “renewable” resources such as water are certainly immense. Credible estimates of the annual economic contributions of “environmental services” run into multiple trillions of dollars. But such resources are only truly renewable if properly treated. Not if species are driven to extinction, or if they become so scarce as to make them commercially useless and incapable of recovery in a lifetime. Certainly not if watersheds are destroyed. Not if coral reefs are killed. Not if topsoil is blown or washed away. Not if complex interlocking communities of living organisms are disrupted.

The developing world’s economic progress is unquestionably tied to the careful management and protection of its natural resources. Coastal wetlands, mangrove forests and offshore reefs, for example, are essential for healthy fish populations (sometimes far away from the source of impact)—and fish is currently the leading source of animal protein in the human diet worldwide. Forests serve as “carbon sinks” to help control carbon dioxide buildup in the atmosphere. Forests also promote the retention of water and prevent soil from blowing away and eroding into critical waterways—waterways that provide drinking water, hydropower, irrigation and transportation to millions of people, as well as essential nutrients and water of adequate quality to coastal resources. Biodiversity provides pollination, pest control, and the recycling of essential elements, such as carbon, oxygen and nitrogen. Parks and protected areas are critical to conserving biodiversity, and they have the added benefit of attracting tourists who generate income and employment. Nature tourism alone already generates \$12 billion annually.

By contrast, the degradation of biological resources leads to poverty, hunger, disease and civil unrest. Massive shifts in population may occur when affected peoples migrate from areas that once were productive but now cannot support them. The linkages between natural resource depletion in developing countries, and the national security of the United States, are real and growing in this age of economic globalization.

The Conservancy does not see this situation as necessarily development versus conservation. In most situations, indeed in virtually all, it is possible to achieve both. In fact, in the long run there can be no development, especially in countries that depend heavily on natural resources as most poor countries do, without careful management (including conservation) of the countries' natural heritage. Conversely, there cannot be effective conservation if the people living in or near areas that should be protected have no economic alternatives to consuming the natural resources of those areas simply to survive. The answer is thoughtful economic development that recognizes the importance, limitations and fragility of natural biological systems. There is a growing recognition of these facts in Latin America and the Caribbean. But, unless countries act effectively on this understanding before careless development devours biological resources once and for all, they will lose the race—to the severe detriment of future generations and the planet.

#### WESTERN HEMISPHERE COUNTRIES INCREASINGLY REALIZE THE VALUE OF CONSERVATION

Over the course of recent decades, many nations of Latin America and the Caribbean recognized that natural resources that seemed abundant were, in fact, limited and had to be managed thoughtfully. Many took important initial steps to conserve their living resources by establishing systems of protected areas, to safeguard critical forests, watersheds, coastal and marine ecosystems, wildlife habitat, scenic attractions, and other areas of significance. Often, however, these nations had not succeeded in effectively managing these areas so as to truly protect them—they remained “paper parks.”

To address this serious problem, in Fiscal Year 1990 the Agency for International Development (AID) began supporting the Conservancy's “Parks in Peril” (PiP) program, a public-private partnership that seeks to protect the most important and threatened national parks and reserves in this hemisphere.

Parks in Peril was designed to secure minimum critical management for a series of natural sites, transforming them into functional protected areas. The program builds collaborative partnerships among national, international, public and private organizations. It has become the largest *in-situ* biodiversity conservation project in the tropical world and has drawn wide support from other governmental and non-governmental constituencies in the region and around the globe, as well as from private firms and individuals.

Parks in Peril works to achieve four objective goals:

- (1) To build on-site protection and management infrastructure;
- (2) To integrate the protected areas with the human societies inhabiting their surrounding regions;
- (3) To create long-term funding and policy mechanisms to sustain the local management of the Parks in Peril sites; and
- (4) To influence conservation in other sites in the region's most imperiled ecosystems.

AID and the Conservancy have designed an innovative scorecard to measure how well particular sites meet these goals. As they do so, the sites are “consolidated”—having achieved the program's original goals, they are phased out from receiving direct assistance from AID. This transition to long-term sustainability has been from the outset a fundamental goal of the program.

#### CONCLUSIONS AND RECOMMENDATIONS

Mr. Chairman, Members of the Committee, our experience of international conservation has convinced the Nature Conservancy of the urgent need to do more to protect these precious biological resources. We are currently in the midst of the largest-ever private fund-raising effort for conservation. We have set a goal of \$1 billion in private funds for conservation, of which we have earmarked \$100 million for our international conservation programs. I am proud to say that we are halfway there—we have raised \$500 million toward our goal. But the technical and financial contributions of U.S. Government agencies will remain essential to this great effort, including in our work overseas. I urge the Members, both in the Committee and in their other activities as Senators, to support increased efforts by the United States Government to protect global biodiversity through increased funding to the biodiversity conservation programs of AID, to the Global Environment Facility (40 percent of whose budget goes for biodiversity conservation), and to the under-funded but immensely useful international programs of the U.S. Forest Service and the Fish and Wildlife Service, and as well as those of NOAA and the EPA.

Finally, Mr. Chairman, I take this occasion to express the hope that the full Committee will be able before recessing for the year to take up those conservation-related international agreements that are pending before the Committee and uncontroversial. The Sea Turtle Convention, which received a hearing last week, is one such. Another worthy of action is the Caribbean "SPAW" (Specially Protected Areas and Wildlife) Protocol to the Cartagena Convention. We have worked with this Protocol and know its value, and hope that the Senate is able to provide its advice and consent this year.

I thank you once again for this opportunity to share with you and the Committee the Nature Conservancy's views on these important international conservation issues.

Mr. CHAFEE. Thank you, very much for your time and your testimony. Good luck in raising the billion dollars.

Mr. WATSON. We are working on it.

Mr. CHAFEE. And we will work here on the congressional side on the funding that you care about, the Global Environmental Facility and others.

Mr. WATSON. Thank you.

Mr. CHAFEE. And as you said about your work, these efforts also contribute to strengthening civil society, noble goals.

Dr. Billie R. DeWalt is the director of the Center for Latin American Studies and distinguished service professor of Public and International Affairs and Latin American Studies at the University of Pittsburgh, Pittsburgh, Pennsylvania. Did you get in this morning or last night?

Dr. DEWALT. Last night.

Mr. CHAFEE. Last night. Easy flight?

Dr. DEWALT. Yes.

Mr. CHAFEE. Good. Welcome. And when do you go back?

Dr. DEWALT. Today.

Mr. CHAFEE. Today. Great. Thank you for taking the time.

Dr. DEWALT. Sure.

Mr. CHAFEE. Welcome.

**STATEMENT OF THE DR. BILLIE R. DEWALT, DIRECTOR, CENTER FOR LATIN AMERICAN STUDIES, DISTINGUISHED SERVICE PROFESSOR OF PUBLIC AND INTERNATIONAL AFFAIRS AND LATIN AMERICAN STUDIES, UNIVERSITY OF PITTSBURGH, PITTSBURGH, PA**

Dr. DEWALT. Well, it is a pleasure to be here. And I really appreciate the opportunity to address the subcommittee about my perspective on growth and the environment in Latin America. My remarks are based on three decades of research in Latin America and I have consulted with a lot of the organizations that have been mentioned here today, including the Inter-American Development Bank, the World Bank, Global Environment Facility, World Wildlife Fund, USAID and so on.

I will briefly summarize my remarks and then submit the balance of my testimony for the written record.

There are several main points that I wish to make in my statement to the subcommittee. And I would like to emphasize first that Latin America is quite rich in its resource endowments compared to its population. With only 8 percent of the world's population, it contains rich mineral and fossil fuel deposits, 25 percent of the world's potentially cultivable land, 30 percent of the annual fresh-



water runoff, and 25 percent of forest and more than 50 percent of tropical forests in the world.

And because of the economic reforms that have taken place in the region, several of the countries are now growing quite rapidly. But with economic growth, the already stark socioeconomic inequalities in the region are being exacerbated. In my written testimony, I just refer to a couple of the recent studies that have been done.

The extremes of wealth and poverty in the region are both implicated in continuing conservation degradation. We often blame the poor because they mine resources in order to survive. But I have also seen many cases in which the rich, because they act with impunity regarding environmental laws, regulations and norms, are also significant causes of environmental degradation.

The poor, of course, are often also the victims of environmental destruction. They have the least access to decent habitats, clean water and air, suffering infectious diseases, the effects of natural disasters like Hurricane Mitch and malnutrition.

From my perspective, conserving and improving natural resources will require interventions that directly provide economic incentives to people and to industry to maintain and enhance their natural resources. I can provide a lot of examples in data on these issues from my own work over the last 30 years. But I would like to do is to mainly focus on what I see as some of the important policy solutions that are required.

Major steps, of course, I think have to occur within Latin America countries to reduce inequalities. And this is a task that I think very few governments have been willing to tackle.

For the United States, we have relatively blunt edged policy instruments. But there are some things that I think can be very useful.

In terms of policy solutions, one thing I would like to emphasize, and I think it reinforces what some of my colleagues here have said today, is that it is really important to continue foreign assistance to Latin America, honoring our international commitments to the multilateral development banks, to the global environment facility. I know that USAID funding for the Latin American, Caribbean region has been shrinking over the last several decades.

But this foreign assistance to Latin America ought to be really targeted specifically on social and environmental policies.

As a result of a lot of the forms that have been undertaken in the last several years, foreign directed investment to the region now is huge and growing. And it is really taking care, I think, of many of the private development needs of the region. This means that U.S. foreign and multi-lateral development bank assistance should address the issues that are not likely to be effected by foreign direct investment.

This, of course, includes a focus on environmental laws, regulations, particularly strengthening enforcement. We have, as I mention in my written testimony, quite a number of Latin America countries that have adopted environmental ministries, have put in place very fine sounding environmental laws and regulations. But what is really lacking is enforcement of these regulations. The main environmental protection organization in Mexico, for exam-

ple, has 150 agents to cover the whole country. Obviously, this is a prime area in which investment ought to be allocated.

And, of course, U.S. foreign assistance should also be targeting health and education programs to alleviate some of the poverty in the region.

The second thing that I stress in my written testimony is that we need to determine how to create structures to compensate rural people for the environmental services that they provide. That is we need to attach a value to the production of clean water and air, soil conservation and carbon sequestration.

As Ambassador Watson has mentioned, using mechanisms like easements to protect forest and watersheds, determining how we can use certification schemes for things like organic coffee and wood that is produced in a sustainable manner and then creating market mechanisms that actually work to get consumers to purchase these goods that are certified as being eco-friendly. I think that Mr. Leonard mentioned there is a lot of certification efforts going on in Latin America. I have seen in Mexico there is very substantial certification, smart wood certification of forests. Unfortunately, this kind of certification has not yet led to people being able to market the timber that they produce at a reasonable price. In other words, they are getting the same amount of money for eco-friendly wood as any other producer.

A third mechanism here in terms of structures I think is to look at carbon credit markets as proposed in the Kyoto protocol to reduce greenhouse gas emissions. This is something that would allow industries in the industrialized world to essentially purchase carbon credits in developing countries that agree to maintain forests.

The third area I would like to emphasize is the need for greater research collaboration. USAID has quite a number of collaborative programs in agriculture that have been operating for approximately 20 years. To my knowledge, there is only one that really focuses on the environment which is the Sustainable Agricultural Natural Resource Management collaborative research support program. And I think we need to have additional programs that USAID creates to link U.S. universities with universities in Latin America that focus on the inter-related biological and social issues.

As the National Science Foundation expands its environmental science program, I think one of the things that I have seen missing in much of what NSF has been proposing is any mention of cross border collaboration.

Again, there is the necessity to develop linkages between U.S. universities and universities in Latin America and in other parts of the world.

A particular interest of mine in terms of a third policy recommendation is that I think the United States ought to instruct its representatives to the multilateral development banks to push for social analysis of projects.

That is I think we need to complement the existing analyses that are carried out within the development banks that focus on financial, economic, technical, institutional and environmental analysis to also include social analysis. World Bank, Inter-American Development Bank, should be investing in projects that privilege resource poor people in the Latin American region. And I think that

if we had social analysis of programs to really determine what the effects of those programs are, who wins and who loses, that they would be both more socially as well as environmentally sustainable.

So the bottom line is, from my perspective, unless we address the issues of social inequality and poverty in Latin America more directly, then environmental degradation is going to continue. And many of the results of that degradation will be exported to the United States through illegal migration, production of drug crops and political turmoil near our borders. Thank you, very much.

[The prepared statement of Dr. DeWalt follows:]

#### PREPARED STATEMENT OF DR. BILLIE R. DEWALT

##### INTRODUCTION

The tragedy that Hurricane Mitch caused in Honduras, Nicaragua and El Salvador in November of 1998 should teach us an important lesson concerning the linkages between poverty, wealth and environmental degradation in Latin America. Although the hurricane hit the Caribbean, most of the damage occurred on the Pacific coast of Central America. There, the drenching rains fell on deforested hillsides resulting in landslides that blocked rivers and buried shanty towns, flooding that destroyed bridges, roads, power lines, crops, and aquaculture farms (DeWalt 1998). That death and devastation were exacerbated by the deforestation and degraded watersheds of the region.

The main point of my presentation is to stress that many of the most important environmental problems and challenges for Latin America are directly or indirectly linked to inequality and poverty. To be sure, the increasing adoption of a market economy by most Latin American countries has reversed the effects of the debt crisis in the 1980s and brought positive growth rates to many countries. But positive economic growth has not reduced poverty in the region, and indeed in several countries has exacerbated the already large inequalities between the rich and the poor (Berry 1997). Real wages in Mexico, for example, are more than 25% lower than they were in 1980 (Economist, June 24th 2000:26).<sup>1</sup> Progress in addressing issues like deforestation, biodiversity loss, water and air contamination, and watershed deterioration in Latin America can be made, but only if countries and donors promote programs that directly address the linkages between inequality and environmental degradation.

##### THE CURRENT SITUATION

Latin America is a region with considerable resources and a relatively sparse population so achieving sustainable development there ought to be easier than in other parts of the developing world. Consider that although the region has only about 8% of the world's population, it contains:

- rich mineral and fossil fuel deposits as well as coastal and marine resources
- 25% of the world's potentially cultivable land (Reca and Echevarria 1998:xiii)
- 25% of forests and more than 50% of the tropical forests (<http://www.iadb.org/sds/document.cfm/45/ENGLISH>)
- about 30% of annual freshwater runoff (IDB 1998:5)

Despite this, estimates are that:

- 45% of the population is poor, the absolute number of poor have increased by 80 million in the last 25 years, and 60 million people in the region are malnourished (Reca and Echevarria 1998:xiii)
- 84 million had no access to clean drinking water
- over 165 million had no adequate sewer service and less than 10% of municipal wastewater is treated (Inter-American Development Bank 1998:5)
- the region has the highest rates of deforestation in the world, losing 7.4 million hectares per year (Dourojeanni 1999:1)

<sup>1</sup>For example, between 1996 and 1998, social inequality in Mexico increased with the poorest 60% of households in Mexico seeing their income share fall from 26.9 to 25.5%, while the share held by the wealthiest 10% rose from 36.6 to 38.1% (Economist 2000:25).

Although it is easy to be pessimistic about environmental trends in the region, there are a number of positive signs of progress. Relating to forests and watersheds, for example:

*Most countries no longer promote colonization schemes in tropical forests.* Inequality in access to land in Latin America has been a continuing source of social conflict, fuelling many of the revolutions and civil wars that plagued the region. Although this led to attempts at agrarian reform particularly beginning in the 1960s, more often than not colonization of tropical areas was promoted to relieve pressures on land. In Mexico and Central America, this meant resettling people from highland areas to coastal and/or tropical areas. In South America, it resulted in colonization of the Amazon basin. Most of these schemes did not result in viable agriculture and were failures, though they caused considerable deforestation. Although schemes like Mexico's "March to the Sea" and National Commission for Forest Clearing from the 1960s and 1970s have disappeared, road building into tropical areas continues to lead to settlement and deforestation.<sup>2</sup>

*Legal Changes Improved Incentives for Forest Conservation.* Colonization efforts were often accompanied by laws denying ownership titles to settlers until they had put at least 50% of their land into cultivation. This resulted in substantial deforestation and in most cases planting of pasture for cattle. Such incentives for deforestation have been removed in most countries. Property rights regimes are also being reformed to encourage conservation. For example, resin-tappers in Honduras who worked the pine forests had little incentive to care for the trees because all trees were owned by the state. In Mexico, timber companies were given concessions to cut timber on the lands of indigenous communities; neither the communities or the companies had incentives to insure that sustainable forest practices were followed. Indigenous communities in the poor southern state of Oaxaca struggled for years to have the right to work their own forests, and succeeded in having forestry laws changed in the early 1990s. With forests now under their own control, management has improved significantly, some communities have created their own forest reserves, and many are developing ecotourism projects with the assistance of a World Bank program.

*Requirements for Environmental Impact Assessments Are Now Common.* In the late 1980s and early 1990s, the World Bank, Inter-American Development Bank, and USAID began requiring that environmental impact assessments be done for projects they sponsored. This has helped to insure that donor projects do not have negative impacts on the environment. Spurred by these models and concerns about environmental degradation, several countries in the region (e.g. Mexico, Argentina) are now beginning to require environmental impact assessments of major projects within their borders.

*Countries Have Established Ministries Focused on Environmental Concerns.* Of the countries in the region, 16 out of 22 now have a cabinet post that focuses on environmental concerns. Most of these have been established within the last several years. Legal frameworks for environmental protection are being established in most countries and the Inter-American Development Bank has been supporting these efforts. It is critical to get such legal frameworks in place as a means of eventually regulating private sector development within countries.<sup>3</sup>

*International and National NGOs Are Intensely Involved.* Led by such international organizations like the World Wildlife Fund, Nature Conservancy, Conservation International, and others, the non-governmental sector has been intensely involved in efforts to create and manage parks, reserves, protected areas, and to encourage natural resource management. These organizations understand that communities must be involved and be able to generate income if resource conservation is to be successful. Greenpeace and others have adopted a watchdog role and are activists in opposing projects that may lead to resource degradation (e.g. successfully opposing the salt works proposed for San Ignacio Lagoon on the Gulf of California in Mexico). Local nonprofit organizations with an environmental focus are being established in all countries reflecting increased public concern about the environment (e.g. about 700 environmental NGOs are registered in Mexico).

<sup>2</sup> One particular project that is currently of great concern is the proposed \$100 billion *Avana Brasil* infrastructure program to expand soy production and exports that may result in an additional 18 million hectares of deforestation (Bonnie et. al. 2000:1763).

<sup>3</sup> Even where an adequate legal framework is in place, enforcement is still problematical. For example, the Attorney General's Office for Environmental Protection (PROFEPA) in Mexico has fewer than 150 agents for the whole country.

## CONTINUING PROBLEMS

Despite these signs of progress, environmental degradation continues unabated in Latin America. Among the most vexing problems are the following:

*Transparency and Fairness in the Application of Laws and Regulations Are Often Lacking.* Major corporations and wealthy private investors often play by different rules than everyone else in Latin America. Abuses of power and authority, unfortunately, are all too common when it comes to environmental requirements. In Mexico recently, a peasant told me that the laws are only applied to the poor. He and those in his community are fined for extracting timber from forests if all of their permits are not done exactly right. At the same time, illegal timbering goes on all around their community and the sawmill industry is not required to document from where they receive their logs. Local people have learned not to press charges against the illegal timbering because the culprits are released almost immediately, and retaliate against their accusers. Inequality means that the rich and powerful are able to engage in practices that cause environmental degradation.

*Poverty Continues to Cause Environmental Degradation.* Inequality and poverty in places like the Pacific Coast of Central America. Deforestation there is caused by the poor who plant subsistence crops on steep hillsides. Their poverty, however, co-exists alongside wealth created by melon-growers producing for the export market, shrimp producers who now cultivate this commodity in ponds along the coast, and especially cattle producers who have appropriated much of the best land for their ranches. The Pacific Coast of El Salvador, Honduras, and Nicaragua has long been characterized by vast differences between the wealthy few who have appropriated the best, flat lands, often for commodities like cattle that require little labor to produce. The Honduran Central Bank estimated in 1988 that 48% of the valley lands in the country were sown in pasture for cattle. The poor majority is left with the alternatives of deforesting the steep slopes for a patch of land to cultivate, migrating to the cities where they create squatter settlements, or invading the protected areas of Honduras' rainforest (DeWalt et. al. 1993). Poverty, infectious diseases, environmental degradation, illegal migration, cultivation of drug crops, and other ills are all common problems affecting the poor regions of most Latin American countries.

## POLICY SOLUTIONS

Attacking the linked problems of inequality and environmental degradation must be made a priority. The solutions that are required will require public policy efforts primarily within the countries of the region. The United States and other donors, however, can take steps that can help. Our country's efforts to promote democracy, free trade, and stability in the Americas are unlikely to be successful unless people have a livable environment (State Department 1997). Priority must be given to investments in Latin American regions that both provide economic opportunities to reduce inequalities and conserve the environment.

*U.S. Assistance Targeted at Poverty and the Environment to the Region Should Be Increased and Made More Effective.* In the face of the dire needs of Africa and parts of Asia, U.S. assistance to Latin America has diminished at the same time that we have focused efforts on the North American Free Trade Agreement and potentially a Free Trade Agreement of the Americas. Building more sustainable relationships with Latin America cannot occur when environments are degraded because those who live in these areas will migrate internally and/or internationally to seek a better life. Investing in programs run by reputable Nongovernmental Organizations like WWF, Conservation International, Nature Conservancy, and others that try to work with various stakeholder groups and that work with local NGOs ought to be a priority.

*We Need to Determine Ways to Compensate Rural People in Latin America for the Environmental Services They Provide.* Clean water and air have always been thought of as free public goods. Increasingly, as part of the strategies we use to address rural poverty, we should determine ways to compensate people for the production of "ecosystem services" they provide. For example, the soil erosion from degraded watersheds of southern Honduras means that shrimp farms along the coast must spend an estimated five cents a pound of shrimp tail produced just to manage sediments in ponds (Samayoa, Thurow and Thurow 2000:16). If government were to begin programs to "tax" downstream users for environmental services, it could make significant investments in assisting upstream farmers. An example of where this is working now is that the water management agency in Quito, Ecuador is now allocating a percentage of user fees collected to help conservation efforts in a national park in the mountains where the water is produced. Similar kinds of programs can be established to provide rural people with income and/or investments

to maintain forests that would help provide clean water and air to Mexico City and other large urban metropolises, to maintain forests in watersheds to prevent the siltation that reduces the life of hydropower dams, and to improve watersheds that provide irrigation water to downstream users.<sup>4</sup>

On a global scale, tradable permits are one mechanism for doing this. There is considerable interest in using forest conservation for carbon sequestration to help address global climate change. The “adoption of forest carbon markets (as proposed under the Kyoto Protocol) . . . could dramatically increase incentives for developing nations to protect forests” (Bonnie et. al. 2000:1763). The Clean Development Mechanism of the Kyoto Protocol could allow industrialized nations to purchase carbon credits to meet overall goals of reducing greenhouse gas emissions.

Consumers also have a role to play by rewarding producers who use sustainable practices. For example, about 90,000 hectares of pine/oak forests in Oaxaca, Mexico have received SMARTWOOD certification, yet thus far producers have not received any market benefits from this. To guide consumers, we need to devote more resources to establishing verifiable, simple certification systems to encourage consumers to purchase products that are environmentally friendly. Organic, shade-grown coffee is an example; another is dolphin-friendly tuna.

The main point here is that unless there are economic rewards and returns that will go to directly helping poor people, it is unlikely that they will engage in behaviors to protect natural resources. Right now, too many people in Latin America see conservation as “prohibition” and contrary to their own interests. As one peasant leader in the Monarch Butterfly Reserve in central Mexico told me just last week: “If you tell me that each year I can harvest one of every ten trees on my land, I will be happy to cooperate. If you tell me that I can’t cut any trees, then I can assure you all ten trees will disappear immediately.”

*The U.S. Should Ask Our Representatives to Multilateral Development Banks to Require Social Analysis of Projects.* The assessment of projects in institutions such as the World Bank and Inter-American Development Bank currently require only financial, economic, technical, and institutional analysis, with environmental analysis now required in most cases. There are “social safeguard policies” on indigenous peoples, involuntary resettlement, and women in development that are applied to some projects, yet social analysis of projects is not required. This means that we have no comprehensive mechanism for determining how projects might affect important issues like poverty or social inequality. Given that multilateral development bank loans are now only a small percentage of foreign investment in Latin America, such loans ought to be targeted in ways that can directly affect poverty and its accompanying maladies.

*Invest in University Linkages Focused on Social and Environmental Research.* International NGOs have done a relatively good job of establishing linkages with local NGOs. Although there are exceptions, U.S. universities have not developed the same sorts of collaborative research and development linkages for environmental research and policy-making with counterparts in Latin America. The kinds of partnerships developed for agricultural research by programs like USAID’s Collaborative Research Support Projects (CRSP) need to be expanded for work on environmental and social research. As the National Science Foundation expands its role in addressing environmental problems (NSF 2000), it ought to provide more emphasis to supporting international research collaborations.

#### SUMMARY

The goal of this presentation was to emphasize the link between inequality and environmental degradation in Latin America. Despite many positive steps that have been taken by Latin American countries in the last several years, the continuing disparities between rich and poor hold threats for the environment. Degradation results from the rich who consider themselves to be above the law, and from the poor who have no alternative but to mine natural resources for current survival. Policy makers must look for means to reduce inequalities and to directly channel resources so that those in control of natural resources have incentives to conserve and improve them.

#### BIBLIOGRAPHY

Bonnie, Robert, Stephan Schwartzman, Michael Oppenheimer, and Janine Bloomfield, 2000 Counting the Cost of Deforestation. *Science* 9 June: 1763-1764.

<sup>4</sup>The World Resources Institute has recently released a report indicating that, at least in the U.S., marketbased approaches to water quality management can be more effective than regulatory approaches alone (Faeth 2000).

- Berry, Albert, 1997, The Income Distribution Threat in Latin America. *Latin American Research Review* 32(2):3-40.
- DeWalt, Billie, 1997, The Human Causes of a Natural Catastrophe (on the effects of Hurricane Mitch on Central America). *Pittsburgh Post-Gazette* Forum Sunday, Nov. 22 (Op-ed).
- DeWalt, Billie R., Susan C. Stonich and Sarah Hamilton, 1993, Honduras: Population, Inequality and Resource Destruction, In Carole L. Jolly and Barbara Boyle Torrey, eds. *Population and Land Use in Developing Countries*, National Academy Press: Washington, D.C., pp. 106-123.
- Dourojeanni, Marc J., 1999, The Future of Latin American Natural Forests. Environment Division Working Paper, Interamerican Development Bank: Washington, D.C.
- Economist, 2000, The Beginning of the End of the Longest-Ruling Party. June 24:25-27.
- Faeth, Paul, 2000, *Fertile Ground: Nutrient Trading's Potential to Cost-Effectively Improve Water Quality*. WRI: Washington, D.C.
- Interamerican Development Bank (IDB), 1998, Integrated Water Resources Management in Latin America and the Caribbean. Technical Study ENV-123, Interamerican Development Bank: Washington, D.C.
- National Science Foundation, 2000, Environmental Science and Engineering for the 21st Century: The Role of the National Science Foundation. NSF: Washington, D.C. (February).
- Reca, Lucio G. and Ruben G. Echeverría, 1998, Agricultura, Medio Ambiente y Pobreza Rural en America Latina: Situación Actual y Propuestas. In Lucio G. Reca and Ruben G. Echeverría, eds. *Agricultura, Medio Ambiente y Pobreza Rural en America Latina*. Instituto Internacional de Investigaciones sobre Políticas Alimentarias: Washington, D.C.
- Revenge, Carmen, Siobhan Murray, Janet Abramovitz, and Allen Hammond, 1998, Watersheds of the World: Ecological Value and Vulnerability. World Resources Institute: Washington, D.C.
- Samayoa, Ma Marcela, Amy P. Thurow, and Thomas L. Thurow, 2000, A Watershed-Level Economic Assessment of the Downstream Effects of Steepland Erosion on Shrimp Production, Honduras. Soil Management Collaborative Research Support Program, Texas A & M University Technical Bulletin 2000-01.
- State Department, 1997, Environmental Diplomacy: The Environment and U.S. Foreign Policy. Washington, D.C.

Mr. CHAFEE. Thank you, very much for your time and your testimony. I especially like when you say it is easy to pessimistic, but here are some of the positive things that are happening. Here are some possible solutions. And let us move forward. So, thank you very much. You really are strong on the linkage of the inequities and progress on environmental concerns and how some of the corporations do not abide by the same laws that everybody else is required to abide by. I am sure that is a problem. The powerful can get away with more than the regular citizens.

Mr. Watson, you have been all over the region as Ambassador, Peru, Colombia, Bolivia, Brazil, Santo Domingo. And in your experience, your rich experience, in traveling the area during the past few decades, how are we doing? How is change coming both on the emergence of democracy, the growing middle class, and addressing some of the basic environmental concerns, proper land use, wastewater treatment?

Mr. WATSON. Well, Mr. Chairman, the broad experience that you mentioned in many countries, looking at a broad variety of issues, I think there has been enormous progress in two or three of the most important issues. And also there are setbacks every now and then, there is no doubt that the countries of Latin America and the Caribbean are essentially committed to democracy even though it needs to be deepened and strengthened in a great variety of ways, especially judicial systems and things like that and greater participation by some of the less fortunate people in the countries. But

still, compared to what it was a while ago, it has been enormous progress.

Second, I think that most of the countries in the region have gotten the macroeconomic policies right now to all sorts of experiments, most of which failed. And every failure, of course, hurts the poorest people more than anybody else. And I think basically the macroeconomic policies are essentially in place if you understand what they are.

Third, I am encouraged that there is a greater awareness on the part of the leadership in most countries that natural resources are not free goods as they might have been considered before. In other words, they are not limitless goods, that they have to manage them carefully or they are not going to have any in the future. That does not mean have I got the right policies in place all the time. But at least there is an awareness which is essential to start to formulate the right policies which sets a context for people like ourselves, and like the AID programs that Carl Leonard was talking about, much more likely to succeed.

Areas where I think there has still been enormous failure is in the distribution of income. In most of the countries, Latin America and the Caribbean, the economic growth has been terrific but has not benefited everybody even close to equally.

This I think has been compounded to a certain extent, to a great extent, by failure of education systems to really be equal, to really bring people who are, let us say, outside the modern sector of the economy into the economy, be able to give them the skills to do that. And I have been worried for a long time that the revolution in communications that is taking place now will widen this gap. We will just have two classes, those who are on the Internet if you will and those who have no idea what it is.

And I think that another area that is relevant in this respect is public health. There has been a lot of improvement in a lot of places, but there is still a long way to go. And it is profoundly in the interest of all the countries of the hemisphere. Even if all you are concerned about is having an adequate labor force to be able to keep your economy booming, to have well-educated and healthy citizens, irrespective of the ethical and moral considerations that I think are important to many of us.

I think that we are now, at least my perspective now in The Nature Conservancy—I just spent a week in Guatemala. I came back last night. You are beginning to see much more creative approaches to reconciling the differences or the potential tensions between development and management of natural resources or conservation of resources. And I think there is a greater awareness of the need to involve the local people in positively constructed and long-term engagement in the solution, designing the solutions and implementing the solutions of those problems.

So obviously, if one has spent a long time in the hemisphere like I have thinking about a lot of these things, I could go on forever and bore everybody in this room. But those would be some of the highlights, at least from my experience.

Mr. CHAFEE. Thank you, very much. I suppose it all does start with education and public health. And those are the building



blocks. Gentlemen, I do not have any other questions. I look forward to working with you in the future as we go forward.

I think there is a tremendous opportunity for our country to be involved across our borders in a positive way, and I hope you can share with us any other ideas you have as we go forward. And we appreciate your taking the time to come all the way from Pittsburgh and back from Guatemala. We are very indebted to sharing your wisdom with us here this morning and wish you the very best. And thank you again.

Mr. WATSON. Thank you, very much, sir.

Dr. DEWALT. Thank you.

Mr. CHAFEE. The hearing is concluded.

[Whereupon, at 10:38 a.m. the hearing was adjourned.]

### Additional Questions Submitted for the Record

RESPONSE OF CARL H. LEONARD TO ADDITIONAL QUESTIONS FOR THE RECORD  
SUBMITTED BY SENATOR CHAFEE

#### PRIORITIZATION OF ENVIRONMENTAL ISSUES

*Question.* This hearing covered a great many environmental issues and problems in Latin America/Caribbean that need to be addressed. It appears that USAID, the multilateral development banks (MDBs), and NGOs are working on all of them.

Would you find it useful to prioritize these problems so that our resources are allocated appropriately? Which problems pose the greatest threat to human health over the long-term?

*Answer.* There is a broad array of environmental issues in the Latin America and Caribbean region. In this regard, USAID brought up a subset of what we feel are some of the most pressing and where we believe we can have an impact: deforestation, water mismanagement, coastal degradation, absence of urban environmental services, and vulnerability to natural disasters. Within this subset, it would be difficult to prioritize because each poses a significant threat to the region's future prosperity and stability, and to United States interests.

With regard to human health, of the myriad of environmental problems facing the region, water scarcity and water pollution may pose the greatest direct threat. Roughly 25 percent of the population in Latin America and the Caribbean lacks access to safe drinking water and almost 60 percent do not have adequate sanitation facilities. Moreover, it is estimated that only 5-10 percent of all municipal wastewater receives any sort of treatment before being discharged. The results are not unexpected: heavily contaminated receiving waters, unhealthy living conditions, and high levels of mortality and morbidity from waterborne diseases, especially among children.

In fact, The World Bank estimates that roughly 60 percent of mortality in children under five years of age is attributable to waterborne diseases. These problems are most acute in pen-urban and rural areas.

USAID and the multilateral development banks (MDB) do have distinct primary areas of focus based on our respective and complementary capacities. In general, USAID focuses on natural resource management issues where the development and dissemination of best practices can be effective, including watershed management and rural water supply and sanitation. The MDBs focus on urban and energy issues that require large capital investments. In the urban and energy sectors, USAID does coordinate with the MDBs by providing grant assistance for the technical analyses and the piloting of promising approaches that can become the basis for MDB loans.

#### URBAN ENVIRONMENTAL INFRASTRUCTURE

*Question.* What are the major impediments to providing basic environmental infrastructure in urban areas?

*Answer.* Historically, central governments have been unable to adequately finance, deliver and maintain roads, sewage, water systems, and solid waste collection for their countries' exploding urban populations. Now, as a result of the recent wave of decentralization throughout Latin America, many of these challenges still exist, albeit at the city level. While decentralization ushered in legal reform which

gave cities the authority to make decisions on service delivery, many new city governments, especially smaller municipalities, remain ill-equipped to respond. Capacity building is needed to help cities learn to plan, finance and deliver infrastructure and environmental services. In addition, further reform at the policy level is required to ensure that cities are granted the authority to access the needed financing—either from capital markets or from local revenue collection—to carry out this new function. In fact, access to capital markets is a major impediment to providing environmental services in the larger urban centers which are home to a growing percentage of the Latin America and the Caribbean population and which require large capital investments. This is a primary focus of the multilateral development banks (MDB).

The recent natural disasters in Latin America, especially Central America and the Caribbean, highlighted the need to build capacity in city governments for responding to the destruction left by floods, earthquakes, and hurricanes. In 1998, for example, Hurricanes Georges and Mitch left millions homeless and without potable water and sanitation services. In such situations, city governments act as primary agents, not only in responding to the disaster themselves, but also in directing the influx of resources from international aid agencies. Under the new framework of decentralization, strong city government capacity in physical and financial management is crucial to rebuilding urban environmental infrastructure and planning for future disasters.

#### LATIN AMERICAN EQUIVALENT OF U.S.-AEP

*Question.* The U.S.-Asia Environmental Partnership [U.S.-AEP] program is a USAID program that brings U.S. firms together with Asian governments and businesses to find solutions to Asian environmental programs, leveraging private sector cooperation and funds to increase the relatively low levels of U.S. government funds. Do you believe that a Latin American equivalent would be equally successful? Should this be considered for Latin America? Are U.S. efforts to promote environmentally preferable technologies leading to real market advantages for U.S. firms?

*Answer.* The concept of bringing United States firms together with Latin America and Caribbean (LAC) governments and businesses to help solve environmental problems is an excellent one and one which USAID has been actively pursuing for several years through programs such as the Environmental Initiative for the Americas (EIA), the Hemispheric Free Trade Expansion (HFTE) Program, and the Environmental Pollution Prevention Program (EP3).

Most recently, the USAID's LAC Bureau launched the U.S.-LAC Environmental Partnership (LACEP) program with the principal purpose of forging lasting partnerships between the U.S. and LAC public and private sectors to address the region's severe environmental degradation problems. LACEP embraces many of the U.S.-AEP principles and makes use of similar implementation mechanisms. For instance, LACEP seeks to enhance the performance of targeted LAC business by supporting U.S. and LAC private sector engagement in the application of innovative, market-based solutions to environment problems. LACEP also will strive to leverage the resources of other donors. In addition to introducing appropriate technologies such as industrial clean production, LACEP will work to identify and overcome the numerous institutional and financial barriers that hinder implementation and dissemination of sound technical solutions.

According to the World Bank, during the last five years, the rate of increase for the demand of environmental goods and services for Latin America and the Caribbean (LAC) exceeded all regions of the world, including Asia and Japan. The annual growth rate for the region is 12 percent as compared to 2 percent for Japan and 10 percent for the rest of Asia. For instance, in the next decade, the demand for environmental goods and services in the water sector alone is expected to be about \$220 billion. Additionally the amount of private investment capital flowing into LAC last year has, for the first time, exceeded that of Asia. USAID, through various mechanisms such as the Latin American Initiative for Environmental Technology (LA-IET) implemented in partnership with the Environmental Export Council (EEC) and our work with regional trade and environment committees, has been successful in introducing U.S. private sector "know-how" and expertise to this growing market and in identifying strategic opportunities for U.S. firms to capitalize on this demand.

#### ECO-REGIONAL APPROACHES

*Question.* I understand that USAID's Center for Environment is working with NGO partners on conservation programs on an eco-regional scale in selected regions around the world. Does this mean that the agency intends to expand eco-regional-

based conservation in other regions and cross border areas in other parts of the world where USAID is present, as well as more broadly in Latin America and the Caribbean? If so, can you identify the areas in the Latin American/Caribbean region that USAID has targeted for large scale conservation action at the eco-region scale?

Answer. USAID feels that conservation planning at the eco-regional scale is critical to conservation success. USAID's Center for Environment, as well as the Agency's regional bureaus, have been incorporating this approach into conservation efforts for the past decade, and are increasingly identifying opportunities to expand the tool where appropriate. Focusing on the sites, populations, ecological processes and threats that are relevant to an eco-region as a whole allows for an integrated approach to conserving biodiversity that transcends political boundaries. Eco-regional approaches use a number of priority criteria and include relevant stakeholders in the planning process, while considering the broader social, economic and political factors that are critical to long-term success.

Specifically, in the Latin America and Caribbean (LAC) region, USAID has been working in partnership with NGOs in several sites to conserve biodiversity, several of these on an eco-regional or transboundary scale. USAID is currently working in the Southwest Amazon Ecological Corridor, the Atlantic Rainforest, the Guyanan Rainforest Corridor, the Cerrado and Pantanal eco-regions, the Yasuni-Napo Forest, a portion of the Northwestern Andes, and the Chaco eco-region.

USAID has also targeted additional areas in the LAC region for eco-regional conservation efforts, for example, the Central America Regional Program (PROARCA) is expanding efforts in the MesoAmerican Biological Corridor, including portions of the MesoAmerican Coral Reef. An eco-regional planning approach is underway in Paraguay, Brazil and Bolivia, which will expand the conservation efforts in the Pantanal eco-region. In addition, discussions are underway concerning the applicability of an eco-regional approach for the eastern slope of the Andes, a region that USAID has targeted for possible, large scale conservation efforts. USAID, in partnership with several NGOs, has also funded a number of eco-regional priority setting projects in the LLAC region, for example, "A Regional Analysis of Geographic Priorities for Biodiversity Conservation in Latin America and the Caribbean" and "Freshwater Biodiversity of Latin America and the Caribbean: A Conservation Assessment."

Although USAID is increasingly identifying opportunities to use eco-regional approaches to target threats to biodiversity and work across national boundaries, there are many cases where a site-by-site or policy specific approach is still the most effective conservation tool. For example, working with the local municipality in Quito, Ecuador, USAID supported a market-based, water-use fee pilot project for Cayambe-Coca Reserve, the watershed serving as the source of the city's potable water supply. The lessons learned and documented at this site will allow the user-fee model of watershed protection to be replicated in other areas containing critical watersheds.

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RESPONSE OF JOSEPH E. EICHENBERGER TO ADDITIONAL QUESTIONS FOR THE RECORD  
FROM SENATOR CHAFEE

*Question 1.* What is the status of the World Bank-sponsored Clean Air Initiative? What results have been achieved to date, and what achievements are ultimately expected?

Answer. The World Bank Institute in partnership with the Bank's Environmentally and Socially Sustainable Development unit in the Latin America and Caribbean (LAC) region and a number of other agencies and companies, launched the Clean Air Initiative in Latin American Cities in December 1998, as a three-year program. The Initiative covers issues of environment, urban, transport, health, energy, industrial pollution, and global emissions, as they relate to the quality of the air in the cities of the most urbanized region of the developing world. Its three goals are: (a) to promote the integrated development or enhancement of city clean air action plans based on the participation of all relevant stakeholders; (b) to advance the exchange of knowledge and experience among all partners; and (c) to foster public participation and the active involvement of the private sector in implementing innovations in the use of low-emissions, low-carbon technologies.

The \$1 million budget for calendar year 2000 includes funding from the World Bank, bilateral donor funds and contributions from the private sector Steering Committee members of the Initiative (DaimlerChrysler, Volvo, Renault, Shell). In addition, recipient cities also contribute. Activities being funded include:

- City Specific Workshops (Buenos Aires, Santiago) \$190,000

- City Action Plans (Buenos Aires, Lima, Rio, Santiago, Mexico) \$450,000
- Distance Learning Course \$80,000
- Web-site Update \$70,000
- Other Communication Tools (brochure, progress report) \$80,000
- Information Pool for Clean Technologies \$40,000
- Clean Air Toolkit \$45,000
- Program Management \$90,000

With respect to operational investments, World Bank projects are either under preparation or implementation in most of the cities currently involved in the Clean Air Initiative (e.g., Mexico City Air Quality II, Buenos Aires Urban Transport, Lima Urban Transport, and Rio de Janeiro Mass Transit). Through the development or enhancement of the city action plans, which account for approximately half the Initiative's budget, cities will identify further areas requiring investment. This additional investment may come from a variety of sources, including local, private sector, bilateral or multilateral financing.

*Question 2.* A review of the Inter-American Development Bank (IDB) environmental programs shows a great deal of emphasis on wastewater treatment projects. Is this emphasis advisable, given the magnitude of other problems?

More than 50% of Latin Americas poor live in urban areas and lack access to clean water and basic sanitation. Consequently, emphasis on water and sanitation generally reflects both borrower priorities and borrower needs. In 1999, IDB lending for water and sanitation accounted for 73% of environmental lending. In 1998 and 1999, the region, especially Central America, was struck by natural disasters that killed thousands and destroyed property and infrastructure. The IDB responded with natural disaster funding for rehabilitation and reconstruction of basic infrastructure that included funding for environmental mitigation measures to reduce vulnerability to future disasters, solid waste management, and water, and for strengthening emergency response capacity. Natural disaster loans accounted for around 21% of the environmental portfolio for 1999. The remainder of the environmental portfolio consists of support for natural resource conservation and environmental management.

Other pressing environmental issues require attention by the IDB and its borrowers. For example, we have encouraged the Bank to do more in the field of energy efficiency and global public goods related to the environment. The IDB is in the process of establishing a Trust Fund with the U.S. Department of Energy to identify and prepare IDB projects that can benefit from U.S. energy efficiency technologies. It has also established a sustainable energy markets program, focussed on energy efficiency, which mobilized \$5 million to prepare energy efficiency projects last year. The IDB recently signed an agreement with the Global Environmental Facility that will permit the Bank to access funding for activities related to global environmental issues. These activities relate to climate change, biodiversity, international waters, depletion of the ozone layer, and degradation of lands, mainly through desertification and deforestation.

*Question 3.* A World Bank analysis for Santiago found that reducing air pollution from cars, trucks, and buses, and converting wood burning industrial sources to other fuel would generate benefits that outweighed pollution control costs by at least a factor of 1.7. Even with a positive benefit-cost ratio, are such investments feasible in the region?

Answer. The World Bank's cost benefit-analysis of an air pollution control scenario for Santiago, Chile, focused on: (a) fixed sources; (b) gasoline vehicles; (c) buses; and (d) trucks, resulted in a benefit/cost ratio of 1.7 and indicated that investments in these areas are highly economically justified. In fact, a number of these measures have been carried out in Santiago and other Latin American cities and have proven the high feasibility of such investments.

The analysis for Santiago focuses on putting in place the appropriate emission standards for vehicles, fuels and stationary sources. To overcome obstacles to the successful implementation of these measures in the region, it is important to: (i) include all relevant stakeholders in the design and implementation of these activities (i.e., energy, transport and environment sectors, NGOs, civil society, etc.); (ii) strengthen compliance and enforcement capacity; (iii) raise public awareness through health studies; (iv) establish the necessary institutional coordination arrangements; and (v) complement these efforts through the use of economic incentives.

The World Bank has worked with its clients in the region in the design and implementation of these measures. For instance, through the Transport Air Quality Management Project in Mexico City, the Bank supported the: (a) development and enforcement of emission standards; (b) implementation of an inspection and maintenance

nance system for vehicles; (c) carrying out of health studies; (d) development of economic incentives (such as fuel pricing and vehicle taxation); (e) strengthening of institutional capabilities to implement air quality measures; and (f) establishment of an environmental coordination commission.

*Question 4.* What are the major impediments to providing basic environmental infrastructure in urban areas?

Answer. The impediments to providing basic environmental infrastructure in urban areas are complex and multiple. The expense of infrastructure is enormous making it very difficult for developing countries to finance the level of infrastructure needed to serve ever-growing populations. Many developing countries lack the capital markets necessary to finance expensive infrastructure projects such as wastewater treatment facilities and urban sanitation. In addition, environmental infrastructure investments do not easily attract private sector finance, particularly in secondary cities. Many of these countries also maintain investment policies or have investment climates that severely impede private sector investment.

Unlike the energy sector in Latin America, infrastructure is not considered by the private sector to be sufficiently profitable. In the case of a wastewater treatment plant, profits are relatively low and the consumers are generally quite poor. To have a positive profit margin, a company would need to set the tariff at a profitable level. This is difficult due to the limited incomes of consumers. In the U.S., such services may be priced at a reasonable level given the average income of its customers. In many of these countries, even small tariffs can surpass the level customers can pay, with one-quarter of the world's population earning less than one dollar a day.

Beyond the financing obstacles, the lack of institutional capacity among municipalities is also a serious impediment to project implementation and successful operation in some cases. Cities must have the capacity to train workers. They must also have knowledge about project design, planning, construction, facility operations, and mechanisms to collect tariffs.

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RESPONSE OF THE NATURE CONSERVANCY TO ADDITIONAL QUESTIONS FOR THE  
RECORD SUBMITTED BY SENATOR CHAFEE

*Question 1.* Given that, "Integrated coastal zone management (ICZM) and marine ecosystem management are recognized as urgent needs to deal with the off coastal resources in the LAC region." What do you believe would be needed to bring about more widespread integrated management in the Latin America and Caribbean (LAC) region?

Answer. To bring about more widespread integrated management in the LAC region there is a need for financial resources to be invested in:

- educational initiatives to build awareness of the important and basic role of marine resources, their economic value, and their nearly ubiquitous state of degradation;
- building the local capacity to manage these resources, as many LAC nations lack the technical expertise for taking on these complex management challenges;
- beginning and improving collaboration among the governmental and nongovernmental entities in the LAC countries that have a vested interest in marine resource management;
- initiating cross-border international collaboration, as the marine ecosystems being managed are fluid in nature and cannot be managed properly in isolation; and
- supporting U.S. Government initiatives, such as those envisioned by USAID Caribbean Region Regional Office in Jamaica, to improve coastal zone management.

We have been working to support the objectives and provisions of the Cartagena Convention Protocol (1983) on Specially Protected Areas and Wildlife in the Wider Caribbean Region (SPAW). This has been accomplished in partnership with the United Nations Environmental Program (UNEP) Caribbean Regional Seas Program to implement training programs for coastal zone managers.

*Question 2.* Are there successful models that can be replicated?

At a multinational level, the USAID funded PROARCA project is a good place to begin. With The Nature Conservancy, World Wildlife Fund and the University of Rhode Island Coastal Resource Center leading a team of in-country partners, PROARCA has attempted to bring the government and non-government commu-

nities together to set common goals for ICZM. There has been work at the local level but also with a Central American Commission for the Environment, which has touched on regional issues including the harmonization of policies for marine resource management. A basic step here is seeing that all countries have similar calendars for closed fishing seasons, so fishermen don't just jump across borders from month to month (in which case the target species never get any relief to reproduce).

As basic building blocks of ICZM, national parks should be established and managed for the protection value they present to many living and non-living marine resources. Our Parks in Peril program (PiP) demonstrates how progress can be made in this regard. Through the implementation of PiP in Parque del Este (PDE), Dominican Republic, many advances have been made toward achieving the balance between conservation and economic development. For example:

- there is now a vibrant constituency focused on protecting the marine resources of the park, spearheaded by local (Dominican) environmental NGO's, and regional organizations like CAST, the Caribbean Alliance for Sustainable Tourism;
- large quantities of important ecological and resource utilization information have been compiled and used in the development of terrestrial and marine habitat maps and recommendations for improving park management;
- local communities surrounding the park are much more engaged in park management and resource-use issues, and work closely with local partners;
- significant strides have been made in improving critical park infrastructure to accommodate the thousands of tourists visiting PDE on a monthly basis.

The Nature Conservancy has contributed to the well being of marine natural resources by developing publications that document successful work. An example is the "Rapid Ecological Assessment Series: Parque Nacional del Este," that provides critical and new information on marine biodiversity conservation planning and management. Through the use of such documents, we are able to use our specific site-based work to leverage conservation training and education across the region.

*Question 3.* Is the relative lack of Integrated CZM a question of financial resources alone, or are major changes in attitudes and approach needed by government and private sector interests in the region?

Answer. It is not just a financial issue. The awareness of the public must be increased. The public needs to understand and appreciate that ICZM is important because coastal zones harbor flora and fauna important to countries' natural heritage, provide food, contain resources (that can be managed sustainably) used locally or exported, and attract tourists. At the end of the day, it is a quality of life issue. Life for the human population will be improved if the coastal zone is managed well.

Government and private sector interests in the region need to set mutual long-term goals and work together to see the resources managed sustainably, not in short-term actions that degrade the resource base.

The biggest change in attitude needed is a commitment to protect the resources for long term sustainability. Establishment of a series of marine parks in high priority coastal systems around the region would demonstrate a major positive change in attitudes. These parks would serve as places for general marine biodiversity protection, but would also serve to protect fishery resources. If these areas were chosen carefully, they would help significantly in both species conservation and fisheries. The fish would spill out of these habitat refuges and provide local fishermen with a resource and would be a highly prized resource by not only the local populations but also the growing tourism sector.

*Question 4.* What do you believe are the coastal and marine areas and resources most at risk today?

Answer. Coastal wetlands (marshes and mangrove forests) and shallow water marine ecosystems (like seagrass beds and coral reefs) are very sensitive to disturbance and over-fishing. They are at risk wherever they occur in Latin America and the Caribbean. Every country should have a strategy for protecting a significant percentage of them, as they form the basis of many food resources. Many of these areas are destroyed slowly through pollution and other go directly under the plow as coastal areas are developed rapidly.

All the common fishery targets (finfish and invertebrates) in the region have been dramatically overfished and should be protected, as most populations are perilously close to crashing.

